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Accreditation cover page to Test Report 2023842STO-001, dated 23 April 2021. Issued by Intertek SEMKO AB

Client: Vestfrost A/S

Product: VLS 054A SDD, VLS 094A SDD, VLS 154A SDD, VLS 024 SDD, VFS 084 SDD, VLS 026 RF SDD, VLS 056 RF SDD, VFS 048 SDD

	Name	**Signature**
Tested By:	Serge Djampou	
Reviewed By:	Ulf Lindmark	
Date of Issue:	23 Apil 2021	

Ackred. nr 1003
Provning
ISO/IEC 17025

This is an Accreditation cover page to endorse that the testing and result presented in the referred report have been conducted under the SWEDAC ISO/IEC 17025 Accreditation, No. 1003

Test report issued under the responsibility of:

TEST REPORT
IEC 60335-2-89
Safety of household and similar electrical appliances
Part 2: Particular requirements for commercial refrigerating appliances with an incorporated or remote refrigerant condensing unit or compressor

Report Number. .....:	2023842STO-001
Date of issue .....:	23-April-2021
Total number of pages.....:	111
Name of Testing Laboratory preparing the Report.....:	Intertek Semko AB
Applicant's name.....:	VESTFROST A/S
Address .....:	Falkevej 12 6705 Esbjerg Ö Denmark
Test specification:	
Standard.....:	IEC 60335-2-89:2010, AMD1:2012, AMD2:2015 for use in conjunction with IEC60335-1:2010, AMD1:2013
Test procedure .....:	CB Scheme
Non-standard test method .....:	N/A
Test Report Form No.....:	IEC60335_2_89J
Test Report Form(s) Originator ....:	IMQ S.p.A.
Master TRF.....:	Dated 2018-05-18

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.

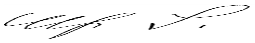
This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

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 CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description .....:	Solar direct driven vaccine refrigerator
Trademark .....:	Vestfrost
Manufacturer .....:	Vestfrost A/S
Model/Type reference.....:	VLS 054A SDD, VLS 094A SDD, VLS 154A SDD, VLS 024 SDD, VFS 084 SDD, VLS 026 RF SDD, VLS 056 RF SDD, VFS 048 SDD
Ratings.....:	10-45V DC, 3.5-8.5A, climate Class 5. See also pages 4-7

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):

☒	**CB Testing Laboratory:**	Intertek Semko AB	
Testing location/ address ..... :		Torshamnsgatan 43 SE-164 22 Kista, SWEDEN	
Tested by (name, function, signature) ..... :		Serge Djampou Project Engineer	
Approved by (name, function, signature) .. :		Ulf Lindmark Mandated Reviewer	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address ..... :			
Tested by (name + signature)..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
Supervised by (name, function, signature) :			

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

- IEC 60335-1:2010/A2:2016 (4 pages)
- Photos (04 pages)
- Maximum Overall Uncertainty (1 page)

Summary of testing: The products are in compliance with the standards mentioned

Tests performed (name of test and test clause):	**Testing location:**
Clause 7: Marking and Instructions. Clause 22: Construction. Clause 24: Components.	Intertek Semko AB Torshamnsgatan 43 SE-164 22 Kista SWEDEN

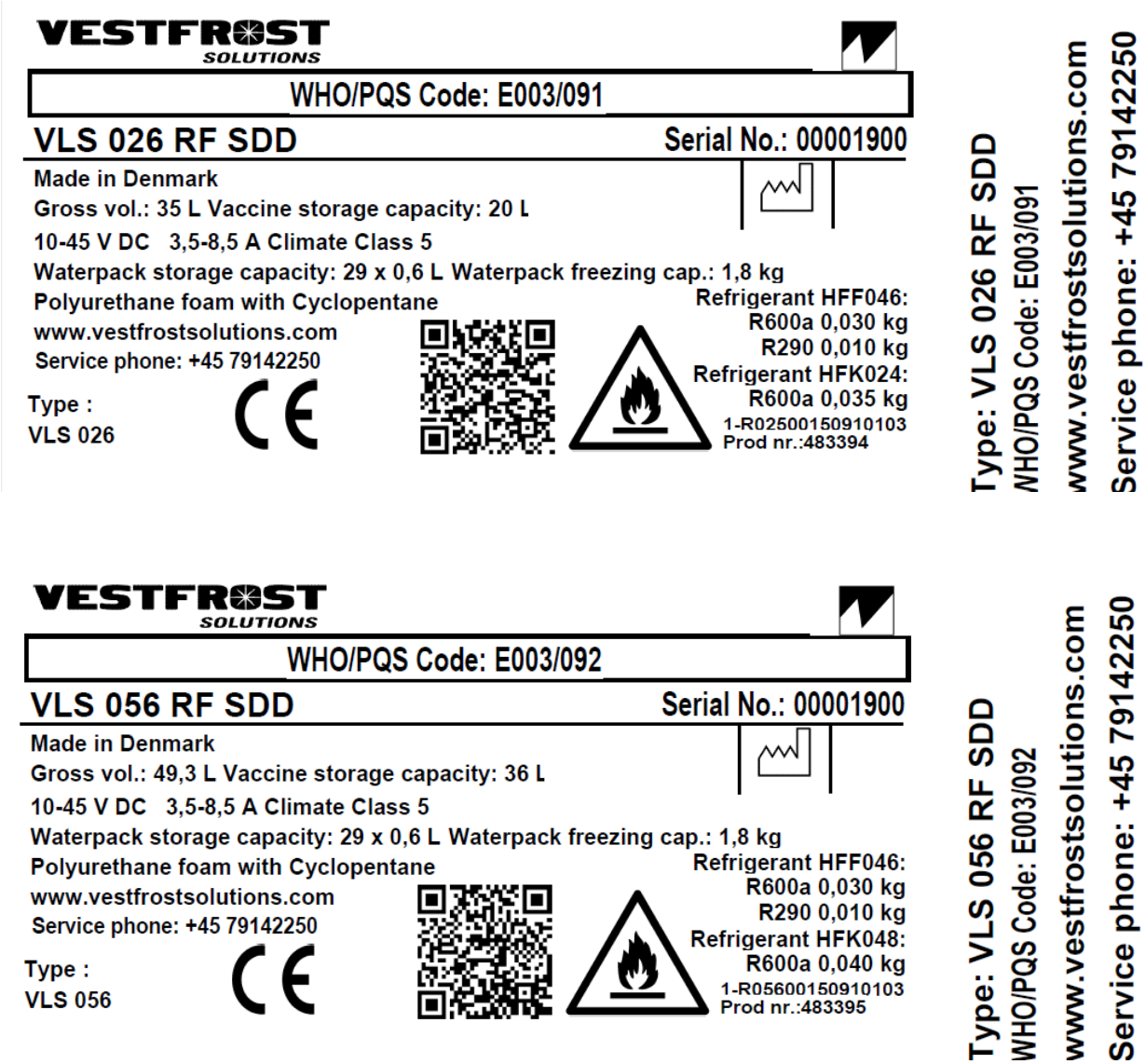
Summary of compliance with National Differences (List of countries addressed):

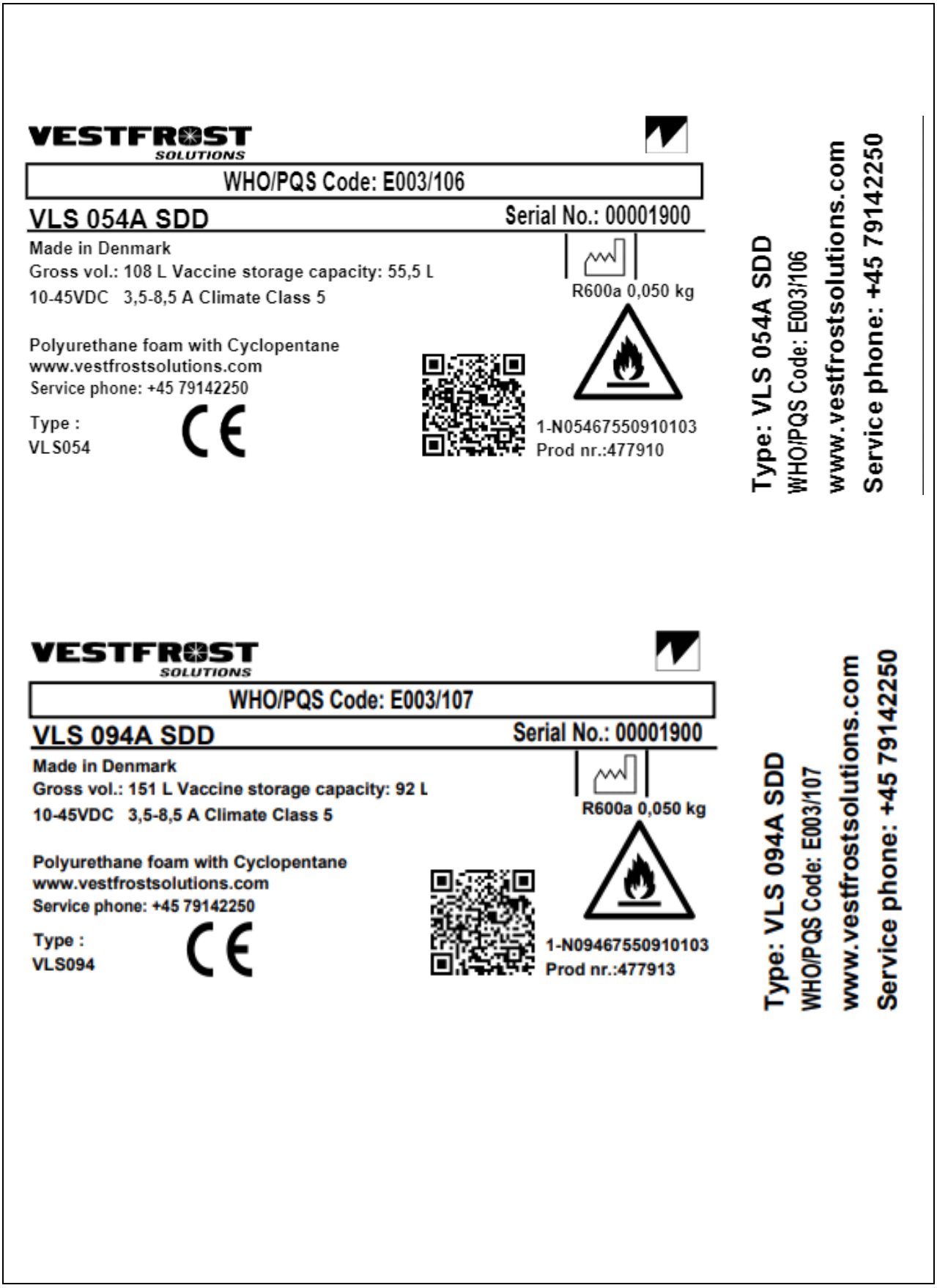
☒ **The product fulfils the requirements of:**

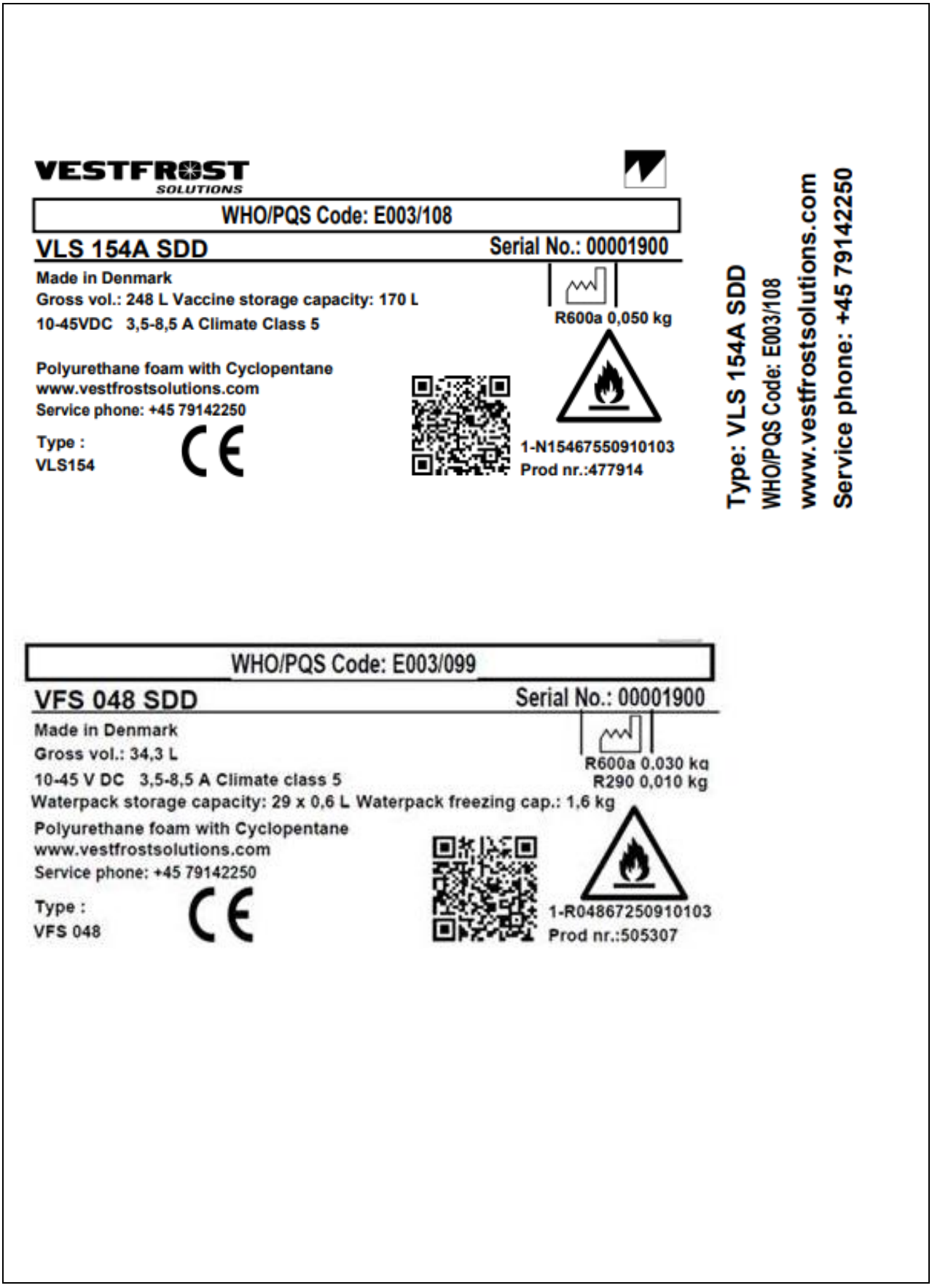
IEC60335-1:2010 + A1:2013 + A2:2016
IEC 60335-2-89:2010 + A1:2012 + A2:2015

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.




VESTFROST SOLUTIONS
WHO/PQS Code: E003/106
VLS 054A SDD
Serial No.: 00001900
Made in Denmark
Gross vol.: 108 L Vaccine storage capacity: 55,5 L
10-45VDC 3,5-8,5 A Climate Class 5
R600a 0,050 kg
Polyurethane foam with Cyclopentane
www.vestfrostsolutions.com
Service phone: +45 79142250
Type :
VLS054
1-N05467550910103
Prod nr.:477910
Type: VLS 054A SDD
WHO/PQS Code: E003/106
www.vestfrostsolutions.com
Service phone: +45 79142250
VESTFROST SOLUTIONS
WHO/PQS Code: E003/107
VLS 094A SDD
Serial No.: 00001900
Made in Denmark
Gross vol.: 151 L Vaccine storage capacity: 92 L
10-45VDC 3,5-8,5 A Climate Class 5
R600a 0,050 kg
Polyurethane foam with Cyclopentane
www.vestfrostsolutions.com
Service phone: +45 79142250
Type :
VLS094
1-N09467550910103
Prod nr.:477913
Type: VLS 094A SDD
WHO/PQS Code: E003/107
www.vestfrostsolutions.com
Service phone: +45 79142250


VESTFROST SOLUTIONS
WHO/PQS Code: E003/108
VLS 154A SDD
Serial No.: 00001900
Made in Denmark
Gross vol.: 248 L Vaccine storage capacity: 170 L
10-45VDC 3,5-8,5 A Climate Class 5
R600a 0,050 kg
Polyurethane foam with Cyclopentane
www.vestfrostsolutions.com
Service phone: +45 79142250
Type :
VLS154
1-N15467550910103
Prod nr.:477914
Type: VLS 154A SDD
WHO/PQS Code: E003/108
www.vestfrostsolutions.com
Service phone: +45 79142250
WHO/PQS Code: E003/099
VFS 048 SDD
Serial No.: 00001900
Made in Denmark
Gross vol.: 34,3 L
10-45 V DC 3,5-8,5 A Climate class 5
R600a 0,030 kg
R290 0,010 kg
Waterpack storage capacity: 29 x 0,6 L Waterpack freezing cap.: 1,6 kg
Polyurethane foam with Cyclopentane
www.vestfrostsolutions.com
Service phone: +45 79142250
Type :
VFS 048
1-R04867250910103
Prod nr.:505307


VESTFROST SOLUTIONS
VLS 024 SDD
VLS 024 SDD
Serial No.:00001900
Made in Denmark
Gross vol. 33 L Net vol. 25 L
10-45 V DC 8,5 A Climate Class 5
R600a 0,035 kg
Type :
VLS 024
CE
1-X02400000910103
Prod nr.:356479
VESTFROST SOLUTIONS
VFS 084 SDD
VFS 084 SDD
Serial No.:00001900
Made in Denmark
Gross vol. 90 Net vol. 80
10-45VDC 3,5-8,5 A Climate Class 5
R600a 0,050 kg
Type :
VFS084
CE
1-X08467250910103
Prod nr.:341939

Test item particulars .....:	Solar Refrigerator
Classification of installation and use .....:	Stationary appliance
Supply Connection.....:	Solar driven
.....:	
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.....:	Safety
Date of receipt of test item .....:	23-November-2020
Date (s) of performance of tests.....:	23-November-2020 – 24-November-2020

General remarks:

"(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.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☐ **Yes** ☒ **Not applicable**

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

Name and address of factory (ies).....:	**A/S Vestfrost** Falkevej 12, DK-6705 ESBJERG Ö DENMARK

General product information and other remarks:

Solar direct driven freezer powered by 10-45VDC. The appliance is intended for freezing and storage of water pack. The system is composed of freezer, solar panels, installation equipments for the solar panels and wires from the solar panels to the freezer.

Original CB Test Report dated 2016 January 04.

Amendment 1 Report:
The original Test Report Ref. No. 1515164STO-001, dated 2016 January 04 was modified on 2016 June 29 in test report form No. 1613468STO-001 to include the following additions:

New models added: VLS 026 RF SDD and VLS 056 RF SDD.

Amendment 2 Report:

The original Test Report Ref. No. 1515164STO-001, dated 2016 January 04 was additionally modified on 2021 April 23 to include the following changes and additions, which were not considered technical modifications:

Models changed:
VLS 054 SDD revised to VLS 054A SDD
VLS 094 SDD revised to VLS 094A SDD
VLS 154 SDD revised to VLS 154A SDD

New models added: VLS 026 RF SDD, VLS 056 RF SDD and VFS 048 SDD

VLS 024 SDD and VFS 084 SDD, are still named the same.

The test results in this test report are based on testing of model VLS 154 SDD. The difference between VLS 154 SDD and the alternative models is as follow:
VLS 154 SDD, VLS 094 SDD, VLS 054 SDD, VLS 024 SDD have same electrical components but different size.
VFS 084 SDD has the same electrical components as the models mentioned above but the thermostat is different, alternative mode K54 from Ranco.

Test results in this report are derived from previously issued test report 1515164STO-001, dated 4 January 2016, issued by Intertek Semko AB.

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict

5	**GENERAL CONDITIONS FOR THE TESTS**		—
	Tests performed according to clause 5, e.g. nature of supply, sequence of testing, etc.		P
5.3	Before starting the tests:		
	- the appliance shall be operated at rated voltage for 24 h then switched off for 12 h		P
5.7	Tests according to sub-clause 10, 11 and 13 at ambient temperature of:		-
	(32 ± 2) °C Climatic class ..... :	0, 1, 2, 3 ,4, 6 or 8 ☐	N/A
	(43 ± 2) °C Climatic class ..... :	5 or 7 ☒	P
5.17	Appliances powered by rechargeable batteries that are recharged in the appliance are tested in accordance with Annex B. (IEC60335-1/A1)		N/A
	Battery-operated appliances powered by batteries that are non-rechargeable or not recharged in the appliance are tested in accordance with Annex S. (IEC60335-1/A1)		N/A
6	**CLASSIFICATION**		—
6.1	Protection against electric shock: Class 0, 0I, I, II, III..... ..... :		N/A
6.2	Protection against harmful ingress of water		P
6.101	Refrigerated display and storage cabinets shall be at least of one of the following climatic classes: 0, 1, 2, 3, 4, 5 ,6 ,7, 8 (IEC 60335-2-89) .....:	Climate class 5	P
7	**MARKING AND INSTRUCTIONS**		—
7.1	Rated voltage or voltage range (V)..... ..... :	10-45	P
	Symbol for nature of supply, or .... :	DC	P
	Rated frequency (Hz) .... :		N/A
	Rated power input (W), or .... :		N/A
	Rated current (A) .... :	3.5-8.5A	P
	Manufacturer's or responsible vendor's name, trademark or identification mark..... ..... :	Vestfrost	P
	Model or type reference .... :	See marking plate, pages 4-7	P
	Symbol IEC 60417-5172, for class II appliances		N/A
	IP number, other than IPX0 .... :	IPX0	N/A
	Symbol IEC 60417-5180, for class III appliances, unless		N/A
	the appliance is operated by batteries only		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	Symbol IEC 60417-5018, for class II and class III appliances incorporating a functional earth (IEC 60335-1/A1)		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 60335-2-89) ..... :		N/A
	Defrosting input, in W, if the current corresponding to the defrosting power input is greater than the rated current of the appliance (W) (IEC 60335-2-89)		N/A
	Climatic class of the appliance (one or more of the numerals 0, 1, 2, 3, 4, 5, 6, 7 or 8) (IEC 60335-2-89)	Climatic class 5	P
	Maximum rated input of incandescent lamps (W) (IEC 60335-2-89)		N/A
	Rated input of discharge lamps (W) (IEC 60335-2-89)		N/A
	Total mass of the refrigerant for each separate refrigerant circuit (IEC 60335-2-89)		P
	For a single component refrigerant, at least one of the following (IEC 60335-2-89):		—
	- the chemical name		N/A
	- the chemical formula		N/A
	- the refrigerant number	R600a (VLS 054A SDD, VLS 094A SDD, VLS 154A SDD, VLS 024 SDD, VFS 084 SDD)	P
	For a blended refrigerant, at least one of the following (IEC 60335-2-89):		-
	- 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		p
	- the refrigerant number of the refrigerant blend	HFF046, R600a and R290 blended (VLS 026 RF SDD, VLS 056 SDD)	P
	The chemical name or refrigerant number of the insulation blowing gas (IEC 60335-2-89)	Cyclopentane	P
	Compression-type appliances flammable which use refrigerants shall be marked with the symbol ISO 7010 W021 (IEC 60335-2-89/A2)		P

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	Appliances employing R-744 in a transcritical refrigeration system shall be marked with the substance of the following: WARNING: System contains refrigerant under high pressure. Do not tamper with the system. It must be serviced by qualified persons only (IEC 60335-2-89)		N/A
	Appliances employing R-744 in a transcritical refrigeration system shall be marked with symbol ISO 7000-1701 (2004-01) (IEC 60335-2-89)		N/A
	For appliances without automatic liquid-level control, marking of maximum liquid level (IEC 60335-2-89)		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		P
	Different rated values marked with the values separated by an oblique stroke		N/A
7.4	Appliances adjustable for different rated voltages or rated frequencies, the voltage or the frequency setting is clearly discernible (IEC60335-1/A1)		N/A
	Requirement met if frequent changes are not required and the rated voltage or rated frequency to which the appliance is to be adjusted is determined from a wiring diagram (IEC60335-1/A1)		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		P
	the power input or current are related to the arithmetic mean value of the rated voltage range		N/A
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		N/A
7.6	Correct symbols used		P
	Symbol for nature of supply placed next to rated voltage		P
	Symbol for class II appliances placed unlikely to be confused with other marking		N/A
	Units of physical quantities and their symbols according to international standardized system		P
	Symbol ISO 7010 W021 for “Caution: Risk of fire / flammable materials” (IEC 60335-2-89)		P
	Symbol ISO 7000-1701 for “Pressure”		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply, unless		N/A
	correct mode of connection is obvious		N/A
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		—
	- marking of terminals exclusively for the neutral conductor (letter N)		N/A
	- marking of protective earthing terminals (symbol IEC 60417-5019)		N/A
	- marking of functional earthing terminals (symbol IEC 60417-5018) (IEC60335-1/A1)		N/A
	- marking not placed on removable parts		N/A
7.9	Marking or placing of switches which may cause a hazard		P
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means .... :		P
	This applies also to switches which are part of a control		P
	If figures are used, the off position indicated by the figure 0		P
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		N/A
7.11	Indication for direction of adjustment of controls		P
7.12	Instructions for safe use provided		P
	Details concerning precautions during user maintenance		P
	The instructions state that:		—
	- the appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction		P
	- children being supervised not to play with the appliance		P
	For a part of class III construction supplied from a detachable power supply unit, the instructions state that the appliance is only to be used with the unit provided		N/A
	Instructions for class III appliances state that it must only be supplied at SELV, unless		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	it is a battery-operated appliance; the battery being charged outside the appliance		N/A
	For appliances for altitudes exceeding 2000 m, the maximum altitude is stated (IEC60335-1/A1)..... :		N/A
	The instructions for appliances incorporating a functional earth states that the appliance incorporates an earth connection for functional purposes only		N/A
	Details concerning precautions during user maintenance (IEC 60335-2-89)		P
	For a part of class III construction supplied from a detachable power supply unit, the instructions state that the appliance is only to be used with the unit provided (IEC 60335-2-89)		N/A
	Instructions for class III appliances state that it must only be supplied at SELV, unless (IEC 60335-2-89)		N/A
	it is a battery-operated appliance; the battery being charged outside the appliance (IEC 60335-2-89)		N/A
	The instructions shall contain information about max. loading of shelves (IEC 60335-2-89)		P
	The instructions shall contain the following (IEC 60335-2-89)		-
	Do not store explosive substances such as aerosol cans with a flammable propellant inside the appliance		P
	If symbol ISO 7000-1701 is used, its meaning shall be explained (IEC 60335-2-89)		N/A
	For compression-type appliances which use flammable refrigerants, instructions shall include information pertaining to the handling, servicing and disposal (IEC 60335-2-89)		P
	The instructions shall include the warnings (IEC 60335-2-89)		P
	WARNING – Keep clear of obstruction all ventilation openings in the appliance enclosure or in the structure for building-in (IEC 60335-2-89)		P
	WARNING – Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer (IEC 60335-2-89)		P
	WARNING – Do not damage the refrigerant circuit (IEC 60335-2-89)		P

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	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 60335-2-89)		P
	Appliances which use flammable insulation blowing gases, instructions shall include information regarding disposal of the appliance (IEC 60335-2-89)		P
	For appliances with double-capped fluorescent lamps, information about lamp replacement (IEC 60335-2-89)		N/A
	Explanation is given of the meaning of the alpha-numeric characters, indicating the climatic of the appliance (IEC 60335-2-89)		P
	Instructions for split-systems those use a flammable refrigerant shall include the substance of the followings warnings: (IEC 60335-2-89)		N/A
	WARNING: In order to reduce flammability hazards the installation of this appliance must only be carried out by a suitably qualified person (IEC 60335-2-89)		N/A
7.12.1	Sufficient details for installation supplied		N/A
	For an appliance intended to be permanently connected to the water mains and not connected by a hose-set, this is stated		N/A
	If different rated voltages or different rated frequencies are marked, the instructions state what action to be taken to adjust the appliance (IEC60335-1/A1)		N/A
	Instructions for appliances with a separate refrigerant condensing unit (IEC 60335-2-89):		—
	- installation to be made by manufacturer’s service personnel or similarly skilled person		N/A
	- type of separate refrigerant condensing unit		N/A
	- a diagram showing the electrical connections		—
	Instructions for appliances employing R-744 in a transcritical refrigeration system shall include the substance of the following (IEC 60335-2-89):		
	WARNING: The refrigeration system is under high pressure. Do not tamper with it. Contact qualified service personal before disposal		N/A
	Instructions for appliances intended for connection to the water supply mains (IEC 60335-2-89):		—
	- maximum permissible inlet water pressure		N/A
	- minimum permissible inlet water pressure for the safe operation of the appliance		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	Instructions for appliances intended for connection to a water supply for cooling purposes (IEC 60335-2-89):		—
	- maximum permitted temperature of inlet water consistent with safe operation of the appliance		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 state 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
	- allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless		N/A
	a switch complying with 24.3		N/A
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		N/A
	Replacement cord instructions, type Y attachment		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	Instructions for fixed appliances stating how the appliance is to be fixed		N/A
7.12.8	Instructions for appliances connected to the water mains:		—
	- max. inlet water pressure (Pa)..... ..... :		N/A
	- min. inlet water pressure, if necessary (Pa) ..... :		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N/A
7.13	Instructions and other texts in an official language	English checked	P
7.14	Marking clearly legible and durable, rubbing test as specified		P
	The height of the triangle in the symbol" ISO 7010 W021 shall be at least15 mm. (IEC 60335-2-89/A2)		P
	The height of the letters used for the marking of the type of flammable insulation blowing gas shall be at least 40 mm. (IEC 60335-2-89/A1)	Cyclopentane	P
7.15	Markings on a main part		P
	Marking clearly discernible from the outside, if necessary, after removal of a cover		P
	For portable appliances, cover can be removed or opened without a tool		N/A
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		P
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		N/A
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading		P
	The symbol IEC 60417-5018 placed next to the symbol IEC 60417-5172 or IEC 60417-5180 (IEC60335-1/A1)		N/A
	Max. rated input of lamps discernible (IEC 60335-2-89)		N/A
	The marking of the type of flammable refrigerant and of the flammable insulation blowing gas, is visible when gaining access to the motor-compressors, and, in the case of remote condensing unit, the pipe connections (IEC 60335-2-89)		P
	The symbol "ISO 7010 W021" is placed on the nameplate of the unit near the declaration of the refrigerant and charge information, and (IEC 60335-2-89/A2)		P
	remain visible after installation of the appliance (IEC 60335-2-89)		P

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Clause	Requirement + Test	Result - Remark	Verdict
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N/A
8	**PROTECTION AGAINST ACCESS TO LIVE PARTS**		—
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	Requirement applies for all positions, detachable parts removed		P
	Lamps behind a detachable cover not removed, if conditions met		N/A
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N/A
	Use of test probe B of IEC 61032, with a force not exceeding 1 N: no contact with live parts		P
	Use of test probe B of IEC 61032 through openings, with a force of 20N: no contact with live parts		N/A
	Where an appliance has parts, which require adjustment under operating conditions by a skilled person after removal of non-detachable parts, live parts shall not be accessible, and they shall be protected at least by basic insulation (IEC 60335-2-89).		N/A
8.1.2	Use of test probe 13 of IEC 61032, with a force not exceeding 1 N, through openings in class 0 appliances and class II appliances/constructions: no contact with live parts	Class II construction	P
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		N/A
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61032, with a force not exceeding 1 N: no contact with live parts of visible glowing heating elements		N/A
8.1.4	Accessible part not considered live if:		—
	- 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

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Clause	Requirement + Test	Result - Remark	Verdict
	- for peak values over 42.4 V up to and including 450 V, capacitance not exceeding 0,1 μF		N/A
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 μC		N/A
	- for peak values over 15kV, the energy in the discharge not exceeding 350 mJ		N/A
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		—
	- 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	Class II construction	P
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
9	**STARTING OF MOTOR-OPERATED APPLIANCES**		—
	Requirements and tests are specified in part 2 when necessary		
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)	N/A
	If the power input varies throughout the operating cycle and the maximum value of the power input exceeds, by a factor greater than two, the arithmetic mean value of the power input occurring during a representative period, the power input is the maximum value that is exceeded for more than 10 % of the representative period (IEC60335-1/A1)		N/A
	Otherwise the power input is the arithmetic mean value		N/A
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N/A
	the rated power input is related to the arithmetic mean value		N/A
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2 ..... :	(see appended table)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	If the current varies throughout the operating cycle and the maximum value of the current exceeds, by a factor greater than two, the arithmetic mean value of the current occurring during a representative period, the current is the maximum value that is exceeded for more than 10 % of the representative period (IEC60335-1/A1)		N/A
	Otherwise the current is the arithmetic mean value		N/A
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		P
	the rated current is related to the arithmetic mean value of the range		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 30s. Starting after 1 min (IEC 60335-2-89)		P
10.101	The power input of the defrosting system, deviation shown in table 1 (IEC 60335-2-89)		N/A
11	**HEATING**		—
11.1	No excessive temperatures in normal use		P
	If the temperature rise of any part exceeds the values given in 11.8, compliance is checked by the test of 11.101(IEC 60335-2-89)		N/A
11.2	Placing and mounting of appliance as described (IEC 60335-2-89):		—
	- according to instructions for installation		P
	- test enclosure		N/A
	- in a test corner		P
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless		P
	the windings are non-uniform, or it is difficult to make the necessary connections		N/A
11.4	Heating appliances operated under normal operation at 1.15 times rated power input (W) ..... :		N/A
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0.94- and 1.06-times rated voltage (V) ..... :		P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0.94- and 1.06-times rated voltage (V) ..... :	9.4V and 47.7V DC	P

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Clause	Requirement + Test	Result - Remark	Verdict
11.7	Operation duration corresponding to the most unfavourable conditions of normal use		P
11.8	Temperature rises monitored continuously and not exceeding the values in table 3 ..... :	(see appended table)	P
	If the temperature rise of a motor winding exceeds the value of table 3, or		N/A
	if there is doubt with regard to classification of insulation,		N/A
	tests of Annex C are carried out		N/A
	During the test protective devices other than self-resetting thermal motor-protectors for motor-compressor do not operate (IEC 60335-2-89)		P
	At steady conditions thermal motor-protectors for motor-compressors do not operate (IEC 60335-2-89)		P
	Sealing compound does not flow out		P
	Protective devices do not operate, except		P
	components in protective electronic circuits tested for the number of cycles specified in 24.1.4		N/A
	During the test temperatures are monitored continuously (IEC 60335-2-89)		P
	For 0, 1, 2, 3, 4, 6 or 8 climatic class, the temperature rises not exceeding values in table 3 (IEC 60335-2-89)		N/A
	For 5 or 7 climatic class, the temperature rises not exceeding values in table 3 reduced by 7K (IEC 60335-2-89)	Climatic class 5	P
	For motor-compressors not conforming to IEC 60335-2-34 (including its Annex AA), the temperatures of (IEC 60335-2-89)		—
	- housing of motor-compressors		N/A
	- windings of motor compressors		N/A
	max. temperature specified in table 101		N/A
	For motor-compressors conforming to IEC 60335-2-34 (including its Annex AA), the temperatures of (IEC 60335-2-89)		—
	- housing of motor-compressors		P
	- windings of motor compressors		P
	- other parts such as its protection system and control system, and all other components that have been tested together with the motor-compressor during the tests of IEC 60335-2-34 and its Annex AA		P
	are not measured		P

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Clause	Requirement + Test	Result - Remark	Verdict
	The entry in Table 3 relating to the temperature rise of the external enclosure of motor-operated appliances is applicable to all appliances covered by this standard (IEC 60335-2-89).		P
	However, it is not applicable to those parts of the external enclosure of the appliance that are (IEC 60335-2-89):		—
	- for built-in appliances, not accessible parts after installation in accordance with the instructions for installation		N/A
	- for other appliances, on that part of the appliance that according to the instructions for installation is intended to be placed against a wall a free distance not exceeding 75 mm		P
	Temperature of ballast windings and their associated wiring not exceeding values in 12.4 of IEC 60598-1, when measured under the conditions stated		N/A
11.101	If the temperatures exceed the limits, the test is carried out again (IEC 60335-2-89):		—
	- 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 tables 3 and 101 (IEC 60335-2-89)		N/A
11.103	Ancillary heating elements, temperature rises don't exceed the values given in 11.8 (IEC 60335-2-89)		N/A
13	**LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE**		—
13.1	Leakage current not excessive and electric strength adequate		N/A
	Heating appliances operated at 1.15 times the rated power input (W) ..... :		N/A
	Motor-operated appliances and combined appliances supplied at 1.06 times the rated voltage (V) ..... :		N/A
	Protective impedance and radio interference filters disconnected before carrying out the tests		N/A
13.2	For class 0, class II and class III appliances, and class II constructions, leakage current measured by means of the circuit described in figure 4 of IEC 60990 (IEC60335-1/A1)		N/A
	For class 0I and class I appliances, a low impedance ammeter may be used		N/A
	Leakage current measurements ..... :	(see appended table)	N/A
13.3	The appliance is disconnected from the supply		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Electric strength tests according to table 4..... :	(see appended table)	P
	No breakdown during the tests		P
14	**TRANSIENT OVERVOLTAGES**		—
	Appliances withstand the transient over-voltages to which they may be subjected		N/A
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6..... :	(see appended table)	N/A
	No flashover during the test, unless		N/A
	of functional insulation if the appliance complies with clause 19 with the clearance short-circuited		N/A
15	**MOISTURE RESISTANCE**		—
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance	IPX0	P
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		N/A
	No trace of water on insulation which can result in a reduction of clearances or creepage distances below values specified in clause 29		N/A
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529 ..... :		N/A
	Water valves containing live parts in external hoses for connection of an appliance to the water mains tested as specified for IPX7 appliances		N/A
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		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, and		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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
	Spillage solution comprising water containing approximately 1 % NaCl and 0,6 % rinsing agent (IEC60335-1/A1)		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 a connector, whichever is most unfavourable		N/A
	Detachable parts are removed		N/A
	Overfilling test with additional amount of the solution, over a period of 1 min (l)..... :		N/A
	The appliance withstands the electric strength test of 16.3		N/A
	No trace of water on insulation that can result in a reduction of clearances or creepage distances below values specified in clause 29		N/A
15.3	Appliances proof against humid conditions		P
	Checked by test Cab: Damp heat steady state in IEC 60068-2-78		P
	Detachable parts removed and subjected, if necessary, to the humidity test with the main part		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Humidity test for 48 h in a humidity cabinet		P
	Reassembly of those parts that may have been removed		N/A
	The appliance withstands the tests of clause 16		P
15.101	Spillage of liquid from inside does not affect their electrical insulation (IEC 60335-2-89)		P
	The relevant tests of 15.102 and 15.103 are carried out (IEC 60335-2-89)		P
15.102	The apparatus shown in figure 101 is filled with water containing 1% NaCl and 0,6% of acid rinsing agent (IEC 60335-2-89)		P
15.103	Appliances, other than built-in appliances, are tilted at an angle of up to 2° (IEC 60335-2-89)		P
	Test with 0,5 l water containing 1% NaCl and 0,6% of acid rinsing agent over horizontal surfaces (IEC 60335-2-89)		P
16	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		—
16.1	Leakage current not excessive and electric strength adequate		N/A
	Protective impedance disconnected from live parts before carrying out the tests		N/A
	Tests carried out at room temperature and not connected to the supply		N/A
16.2	Single-phase appliances: test voltage 1.06 times rated voltage (V) ..... :		N/A
	Three-phase appliances: test voltage 1.06 times rated voltage divided by √3 (V) ..... :		N/A
	Leakage current measurements ..... :	(see appended table)	N/A
	Limit values doubled if:		—
	- all controls have an off position in all poles, or		N/A
	- the appliance has no control other than a thermal cut-out, or		N/A
	- all thermostats, temperature limiters and energy regulators do not have an off position, or		N/A
	- the appliance has radio interference filters		N/A
	With the radio interference filters disconnected, the leakage current does not exceed limits specified... :	(see appended table)	N/A
16.3	Electric strength tests according to table 7..... :	(see appended table)	P
	Test voltage applied between the supply cord and inlet bushing and cord guard and cord anchorage as specified..... :	(see appended table)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	No breakdown during the tests		P
17	**OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS**		—
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use ..... :	(see appended table)	N/A
	Appliance supplied with 1.06- or 0.94-times rated voltage under the most unfavourable short-circuit or overload likely to occur in normal use (V)..... :		N/A
	Basic insulation is not short-circuited		N/A
	Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K		N/A
	Temperature of the winding not exceeding the value specified in table 8		N/A
	However, limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N/A
18	**ENDURANCE**		—
	Requirements and tests are specified in part 2 when necessary		N/A
19	**ABNORMAL OPERATION**		—
19.1	The risk of fire, mechanical damage or electric shock under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe ..... :	(see appended table)	P
	Appliances incorporating heating elements subjected to the tests of 19.2 and 19.3, and		N/A
	if the appliance also has a control that limit the temperature during clause 11 it is subjected to the test of 19.4, and		N/A
	if applicable, to the test of 19.5		N/A
	Appliances incorporating PTC heating elements are also subjected to the test of 19.6		N/A
	Appliances incorporating motors subjected to the tests of 19.7 to 19.10, as applicable		P
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	Appliances incorporating voltage selector switches subjected to the test of 19.15		N/A
	Unless otherwise specified, the tests are continued until a non-self-resetting thermal cut-out operates, or		P
	until steady conditions are established		P
	If a heating element or intentionally weak part becomes open-circuited, the relevant test is repeated on a second sample		N/A
	In addition, fan motors and their thermal motor-protectors, if any, are subjected to the test of Annex AA. (IEC 60335-2-89)		P
	Motor compressors not complying with IEC 60335-2-34 are subjected to the tests specified in IEC 60335-2-34 19.101, 19.102 and 19.104 (IEC 60335-2-89)		N/A
19.2	Test of appliances with heating elements with restricted heat dissipation; test voltage (V), power input of 0.85 times rated power input (W) ..... :		N/A
19.3	Test of 19.2 repeated; test voltage (V), power input of 1.24 times rated power input (W)..... :		N/A
19.4	Test conditions as in clause 11, any control limiting the temperature during tests of clause 11 short-circuited		N/A
19.5	Test of 19.4 repeated on Class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the sheath		N/A
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N/A
	The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during the test of 19.4		N/A
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions		N/A
	The working voltage of the PTC heating element is increased by 5% and the appliance is operated until steady conditions are re-established. The voltage is then increased in similar steps until 1.5 times working voltage or until the PTC heating element ruptures (V) ..... :		N/A
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque, or		P
	locking moving parts of other appliances		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Locked rotor, capacitors open-circuited one at a time		N/A
	Test repeated with capacitors short-circuited one at a time, unless		N/A
	the capacitor is of class P2 of IEC 60252-1		N/A
	Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed ..... :		N/A
	An electronic timer or programmer that operates to ensure compliance with the test before the maximum period under the conditions of Clause 11 is reached, is a protective electronic circuit (IEC60335-1/A1)		N/A
	Other appliances supplied with rated voltage for a period as specified..... :		N/A
	Winding temperatures not exceeding values specified in table 8..... :	(see appended table)	P
19.8	Multi-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 60335-2-89)		N/A
19.9	Not applicable (IEC 60335-2-89)		N/A
19.10	Series motor operated at 1.3 times rated voltage for 1 min (V) ..... :		N/A
	During the test, parts not being ejected from the appliance		N/A
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless		P
	they comply with the conditions specified in 19.11.1		N/A
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8, unless		N/A
	restarting does not result in a hazard		N/A
	Appliances having a device with an off position obtained by electronic disconnection, or a device placing the appliance in a stand-by mode, subjected to the tests of 19.11.4		N/A
	If the safety of the appliance under any of the fault conditions depends on the operation of a miniature fuse-link complying with IEC 60127, the test of 19.12 is carried out		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	During and after each test the following is checked:		—
	- the temperature of the windings do not exceed the values specified in table 8		N/A
	- the appliance complies with the conditions specified in 19.13		N/A
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		N/A
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided both of the following conditions are met:		
	- the base material of the printed circuit board withstands the test of Annex E		N/A
	- any loosened conductor does not reduce clearance or creepage distances between live parts and accessible metal parts below the values specified in clause 29		N/A
19.11.1	Fault conditions a) to g) in 19.11.2 are not applied to circuits or parts of circuits meeting both of the following conditions:		—
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		N/A
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction of other parts of the appliance does not rely on the correct functioning of the electronic circuit		N/A
19.11.2	Fault conditions applied one at a time, the appliance operating under conditions specified in clause 11, but supplied at rated voltage, duration of the tests as specified:		—
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in clause 29		P
	b) open circuit at the terminals of any component		P
	c) short circuit of capacitors, unless		P
	they comply with IEC 60384-14		N/A
	d) short circuit of any two terminals of an electronic component, other than integrated circuits		P
	This fault condition is not applied between the two circuits of an optocoupler		N/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

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Clause	Requirement + Test	Result - Remark	Verdict
	Each low power circuit is short-circuited by connecting the low-power point to the pole of the supply source from which the measurements were made		N/A
19.11.3	If the appliance incorporates a protective electronic circuit which operates to ensure compliance with clause 19, the relevant test is repeated with a single fault simulated, as indicated in a) to g) of 19.11.2		P
19.11.4	Appliances having a device with an off position obtained by electronic disconnection, or		N/A
	a device that can be placed in the stand-by mode,		N/A
	subjected to the tests of 19.11.4.1 to 19.11.4.7, the device being set in the off position or in the stand-by mode		N/A
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7, the tests being carried out after the protective electronic circuit has operated, except that		P
	appliances operated for 30 s or 5 min during the test of 19.7 are not subjected to the tests for electromagnetic phenomena.		N/A
	Surge protective devices disconnected, unless		N/A
	They incorporate spark gaps		N/A
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4		P
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, test level 3		P
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as specified		N/A
19.11.4.4	The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5,		N/A
	An open circuit test voltage of 2 kV is applicable for the line-to-line coupling mode, a generator having a source impedance of 2Ω being used (IEC60335-1/A1)		N/A
	An open circuit test voltage of 4 kV is applicable for the line-to-earth coupling a generator having a source impedance of 12Ω being used (IEC60335-1/A1)		N/A
	Earthed heating elements in class I appliances disconnected		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3		N/A
19.11.4.6	Appliances having a rated current not exceeding 16 A are subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-11		N/A
	Appliances having a rated current exceeding 16 A are subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-34		N/A
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2		N/A
19.11.4.8	The appliance is supplied at rated voltage and operated under normal operation. After 60s the power supply is reduced to a level such that the appliance ceases to respond, or parts controlled by the programmable component cease to operate		N/A
	The appliance continues to operate normally, or		N/A
	requires a manual operation to restart		N/A
19.12	If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 60127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A) ..... :		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
	Compliance with clause 8 not impaired		P
	If the appliance can still be operated, it complies with 20.2		P
	Insulation, other than of class III appliances or class III constructions that do not contain live parts, withstands the electric strength test of 16.3, the test voltage as specified in table 4:		—
	- basic insulation (V) ..... :	1000	P
	- supplementary insulation (V) ..... :		N/A
	- reinforced insulation (V) ..... :	2500	P
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstand the electric strength test of 16.3, the test voltage being twice the working voltage		N/A
	The appliance does not undergo a dangerous malfunction, and		P

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Clause	Requirement + Test	Result - Remark	Verdict
	no failure of protective electronic circuits, if the appliance is still operable		P
	Appliances tested with an electronic switch in the off position, or in the stand-by mode:		—
	- do not become operational, or		N/A
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4		N/A
	If the appliance contains lids or doors that are controlled by one or more interlocks, one of the interlocks may be released provided that:		—
	- the lid or door does not move automatically to an open position when the interlock is released, and		N/A
	- the appliance does not start after the cycle in which the interlock was released		N/A
19.14	Appliances operated under the conditions of clause 11, any contactor or relay contact operating under the conditions of clause 11 being short-circuited		N/A
	For a relay or contactor with more than one contact, all contacts are short-circuited at the same time		N/A
	A relay or contactor operating only to ensure the appliance is energized for normal use is not short-circuited		N/A
	If more than one relay or contactor operates in clause 11, they are short-circuited in turn		N/A
19.15	For appliances with a mains voltage selector switch, the switch is set to the lowest rated voltage position and the highest value of rated voltage is applied		N/A
19.101	Ancillary heating elements dimensioned and located properly and comply with 19.13 during and after the test (IEC 60335-2-89)		N/A
19.102	Appliances so constructed that they do not cause any risk and comply with 19.13 during and after the tests (IEC 60335-2-89)		N/A
19.103	Illuminating equipment does not cause a hazard (IEC 60335-2-89)		N/A
	Discharge lamps operated as specified in items a), d) and e) of subcl. 12.5.1 of IEC 60598-1 (IEC 60335-2-89)		N/A
	During and after the test, the appliance shall comply with 19.13 (IEC 60335-2-89)		N/A
20	**STABILITY AND MECHANICAL HAZARDS**		—
20.1	Appliances having adequate stability		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Tilting test through an angle of 10°, appliance placed on an inclined plane/horizontal support, not connected to the supply mains; appliance does not overturn		N/A
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N/A
	The appliance is tested empty when tilted through an angle of 5° instead of an angle of 10°. (IEC 60335-2-89)		P
	The test with the appliance tilted to 15° is not carried out. (IEC 60335-2-89)		N/A
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N/A
	The test is repeated with doors, lids and similar parts placed in the most unfavourable position; however, the appliance is only tilted to an angle of 5°. (IEC 60335-2-89)		P
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury	Fan adequately arranged	P
	Protective enclosures, guards and similar parts are non-detachable, and		P
	have adequate mechanical strength		P
	Enclosures that can be opened by overriding an interlock are considered to be detachable parts		N/A
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard by unexpected closure		P
	Not possible to touch dangerous moving parts with the test probe described		P
21	**MECHANICAL STRENGTH**		—
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	Checked by applying 3 blows to every point of the enclosure like to be weak, in accordance with test Ehb of IEC 60068-2-75, spring hammer test, with an impact energy of 0,5 J	(see appended table)	P
	The appliance shows no damage impairing compliance with this standard, and		P
	compliance with 8.1, 15.1 and clause 29 not impaired		P
	If doubt, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	If necessary, repetition of groups of three blows on a new sample		N/A
21.2	Accessible parts of solid insulation having strength to prevent penetration by sharp implements		P
	Test not applicable if the thickness of supplementary insulation is at least 1 mm and reinforced insulation at least 2 mm		P
	The insulation is tested as specified, and does withstand the electric strength test of 16.3		N/A
21.101	Lamps liable to be accessible to users, subjected to impact test or be adequately protected against mechanical shock (IEC 60335-2-89)		N/A
21.102	Shelves for displaying or storing beverages shall have adequate mechanical strength (IEC 60335-2-89/A1)		N/A
	Checked by uniformly loading each shelf in turn with a load/unit area of 25 kg/m^2 for 1 h (IEC 60335-2-89/A1)		N/A
	During the test, the shelf deflection shall not exceed 3 mm/meter of shelf width (IEC 60335-2-89/A1)		N/A
	Test repeated with a uniform load/unit area of 230 kg/m^2 or the maximum load specified by the manufacturer, whichever is the most onerous, for 1 h (IEC 60335-2-89/A1)		N/A
	During the test, the shelf shall not fall out of position (IEC 60335-2-89/A1)		N/A
	For appliances intended to display or store barrels, the test is repeated a further four times, the load being removed and then reapplied each time (IEC 60335-2-89/A1)		N/A
	No damage, Compliance with clauses 8,1, 15.1 and 29 not impaired (IEC 60335-2-89/A1)		N/A
	If doubt, supplementary and reinforced insulation subjected to the electric strength test of 16.3 (IEC 60335-2-89/A1)		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 ensure all-pole disconnection from the supply being provided:		—
	- a supply cord fitted with a plug, or		N/A
	- a switch complying with 24.3, or		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided, or		N/A
	- an appliance inlet	Solar/battery operated	N/A
	Singe-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase, permanently connected class 01 and class I appliances, connected to the phase conductor		N/A
22.3	Appliance provided with pins: no undue strain on socket-outlets		N/A
	Applied torque not exceeding 0.25 Nm		N/A
	Pull force of 50N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm		N/A
	Each pin subjected to a torque of 0.4Nm; the pins are not rotating, unless		N/A
	rotating does not impair compliance with this standard		N/A
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		N/A
22.5	No risk of electric shock when touching the pins of the plug, for appliances having a capacitor with rated capacitance equal to or greater than 0,1μF, the appliance being disconnected from the supply at the instant of voltage peak		N/A
	Voltage not exceeding 34 V (V) ..... :		N/A
	If compliance relies on the operation of an electronic circuit, the electromagnetic phenomena tests of 19.11.4.3 and 19.11.4.4 are applied (IEC60335-1/A1)		N/A
	The discharge test is then repeated three times, voltage not exceeding 34 V (V)..... :		N/A
22.6	Electrical insulation not affected by condensing water or leaking liquid		P
	Electrical insulation of Class II appliances not affected if a hose ruptures or seal leaks		N/A
	In case of doubt, test as described (IEC 60335-2-89)		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	Thermostats, except their temperature sensitive parts, shall not be placed in contact with an evaporator unless they are adequately protected against the effects of condensation appearing on cold surfaces and against the effect of water formed during the defrosting process (IEC 60335-2-89)		P
22.7	Compression-type appliances, including protective enclosures of a protected cooling system, using flammable refrigerants shall withstand (IEC 60335-2-89)		—
	- a pressure of 3,5 times the saturated vapour pressure at 70 °C, or equal to 3.5 times the pressure at the critical temperature if this is lower than 70 °C	39 bar	P
	- a pressure of 5 times the saturated vapour pressure at 20 °C, or equal to 2.5 MPa (25 bar), whichever is the greater	25 bar	P
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use		N/A
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances, unless		P
	the substance has adequate insulating properties		N/A
22.10	Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance, if:		N/A
	- a non-self-resetting thermal cut-out is required by the standard, and		N/A
	- a voltage maintained non-self-resetting thermal cut-out is used to meet it		N/A
	Non-self-resetting thermal motor protectors have a trip-free action, unless		N/A
	they are voltage maintained		N/A
	Reset buttons of non-self-resetting controls so located or protected that accidental resetting is unlikely		N/A
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		P
	Obvious locked position of snap-in devices used for fixing such parts		P
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		P
	Tests as described		P

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Clause	Requirement + Test	Result - Remark	Verdict
22.12	Handles, knobs etc. fixed in a reliable manner		P
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		P
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		P
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		N/A
22.13	Unlikely that handles, when gripped as in normal use, make the operator's hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		P
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P
	No exposed pointed ends of self-tapping screws or other fasteners, likely to be touched by the user in normal use or during user maintenance		P
22.15	Storage hooks and the like for flexible cords smooth and well rounded		N/A
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands and no undue wear of contacts		N/A
	Cord reel tested with 6000 operations, as specified		N/A
	Electric strength test of 16.3, voltage of 1000 V applied		N/A
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N/A
22.18	Current-carrying parts and other metal parts resistant to corrosion		P
22.19	Driving belts not relied upon to provide the required level of insulation, unless		N/A
	constructed to prevent inappropriate replacement		N/A
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless		P
	material used is non-corrosive, non-hygroscopic and non-combustible		N/A
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless		P
	impregnated		N/A
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements, except in class III appliances or class III constructions that do not contain live parts, adequately supported		N/A
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		N/A
22.25	Sagging heating conductors, except in class III appliances or class III constructions that do not contain live parts, cannot come into contact with accessible metal parts		N/A
22.26	For class III constructions the insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation		N/A
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N/A
22.28	Metal parts of Class II appliances conductively connected to gas pipes or in contact with water, separated from live parts by double or reinforced insulation		N/A
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		N/A
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		P
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		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		P
	Neither clearances nor creepage distances between live parts and accessible parts reduced below values for supplementary insulation if wires, screws etc. become loose		P
22.32	Supplementary and reinforced insulation constructed or protected against pollution so that clearances or creepage distances are not reduced below the values in clause 29		P

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N/A
	Ceramic material not tightly sintered, similar materials or beads alone not used as supplementary or reinforced insulation (IEC60335-1/A1)		N/A
	Ceramic and similar porous material in which heating conductors are embedded is considered to be basic insulation, not reinforced insulation (IEC60335-1/A1)		N/A
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N/A
22.33	Conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts are not in direct contact with live parts, or		N/A
	unearthed metal parts separated from live parts by basic insulation only (IEC60335-1/A1)		N/A
	Electrodes not used for heating liquids		N/A
	For class II constructions, conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts, not in direct contact with basic or reinforced insulation, unless		N/A
	the reinforced insulation consists of at least 3 layers		N/A
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation, unless		N/A
	the reinforced insulation consists of at least 3 layers		N/A
	An air layer not used as basic or supplementary insulation in a double insulation system if likely to be bridged by leaking liquid		N/A
	Heating conductors having only one layer of insulation are not in direct contact with water or ice during normal use (IEC 60335-2-89)		N/A
	NOTE: Frozen water is regarded as a conducting liquid (IEC 60335-2-89)		P
22.34	Shafts of operating knobs, handles, levers etc. not live, unless		P
	the shaft is not accessible when the part is removed		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
22.35	For other than class III constructions, handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation		N/A
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of a failure of basic insulation, are either adequately covered by insulation material or their accessible parts are separated from their shafts or fixings by supplementary insulation		N/A
	This requirement does not apply to handles, levers and knobs on stationary appliances and cordless appliances, other than those of electrical components, provided they are reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal (IEC60335-1/A1)		P
	Insulating material covering metal handles, levers and knobs withstand the electric strength test of 16.3 for supplementary insulation		N/A
22.36	For appliances other than class III, handles continuously held in the hand in normal use so constructed that when gripped as in normal use, the operator's hand is not likely to touch metal parts, unless		N/A
	they are separated from live parts by double or reinforced insulation		N/A
22.37	Capacitors in Class II appliances not connected to accessible metal parts and their casings, if of metal, separated from accessible metal parts by supplementary insulation, unless		N/A
	the capacitors comply with 22.42		N/A
22.38	Capacitors not connected between the contacts of a thermal cut-out		P
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

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components		N/A
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		N/A
	Resistors checked by the test of 14.1 a) in IEC 60065		N/A
	Capacitors checked by the tests for class Y capacitors in IEC 60384-14		N/A
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N/A
22.44	Appliances not having an enclosure that is shaped or decorated like a toy		P
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.3 due to deformation as a result of an external force applied to the enclosure		P
22.46	For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1		N/A
	Software that contains measures to control the fault/error conditions specified in table R.2 is to be specified in parts 2 for particular constructions or to address specific hazards		N/A
	These requirements are not applicable to software used for functional purpose or compliance with clause 11		N/A
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use		N/A
	No leakage from any part, including any inlet water hose		N/A
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water		N/A
22.49	For remote operation, the duration of operation is to be set before the appliance can be started, unless		N/A
	the appliance switches off automatically or can operate continuously without hazard		N/A
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.51	There is a control on the appliance manually adjusted to the setting for remote operation before the appliance can be operated in this mode		N/A
	There is a visual indication showing that the appliance is adjusted for remote operation		N/A
	These requirements not necessary on appliances that can operate as follows, without giving rise to a hazard:		—
	- continuously, or		P
	- automatically, or		N/A
	- remotely		N/A
22.52	Socket-outlets on appliances accessible to the user in accordance with the socket-outlet system used in the country in which the appliance is sold		N/A
22.53	Class II appliances and class III appliances that incorporate functionally earthed parts have at least double insulation or reinforced insulation between live parts and the functionally earthed parts (IEC60335-1/A1)		N/A
22.54	Button cells and batteries designated R1 not accessible without the aid of a tool, unless (IEC60335-1/A1)		N/A
	the cover of their compartment can only be opened after at least two independent movements have been applied simultaneously (IEC60335-1/A1)		N/A
22.101	Lamp holders properly fixed (IEC 60335-2-89)		N/A
	NOTE: Normal use includes replacement of lamps (IEC 60335-2-89)		N/A
	Edison screw and bayonet lamp holders: Test with torque of (IEC 60335-2-89):		N/A
	Fluorescent lamp holders: Test of 4.4.4 i) in IEC 60598-1 (IEC 60335-2-89)		N/A
22.102	Insulated wire heaters and their joints protected against entry of water (IEC 60335-2-89)		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 60335-2-89)		N/A
22.103	Appliances employing a trans critical refrigeration system shall in the high-pressure side of the refrigeration system (IEC 60335-2-89)		N/A
	include a pressure relief device on the compressor or (IEC 60335-2-89)		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	include a pressure relief device between the compressor and the gas cooler (IEC 60335-2-89)		N/A
	No shut off devices or other components, except piping, between the compressor and the pressure relief device, which could introduce a pressure drop (IEC 60335-2-89)		N/A
	The pressure relief device shall be mounted so that the refrigerant released from the system cannot cause any harm to the user of the appliance. The aperture shall be located so that it is unlikely to be obstructed in normal use. This requirement is not applicable where the pressure is controlled automatically by shutting down the motor-compressor (IEC 60335-2-89/A2)		N/A
	The pressure relief device shall have no provisions for setting by the end user (IEC 60335-2-89)		N/A
	The operating pressure of the pressure relief device shall be no higher than the design pressure of the high-pressure side (IEC 60335-2-89)		N/A
	The refrigeration system, including all components, shall withstand the pressures expected in normal and abnormal use and during standstill (IEC 60335-2-89)		N/A
	Pressure testing has to be done on the complete refrigeration system; however, it can be done separately for the low-pressure side and for the high-pressure side. (IEC 60335-2-89)		N/A
	The pressure relief device is made inoperable and the test pressure is gradually increased hydraulically (IEC 60335-2-89)		
	for the high-pressure side until a pressure not less than the minimum high side test pressure required in Table 101 of IEC 60335-2-34 is reached, however not less than 3 times the design pressure;		N/A
	for the low-pressure side until a pressure not less than the minimum low side test pressure required in Table 102 of IEC 60335-2-34 is reached.		N/A
	For a refrigeration system with an intermediate pressure between high pressure side and low-pressure side, all parts subjected to the intermediate pressure are considered to be on the low-pressure side.		N/A
22.104	Accessible glass panels with an area having any two orthogonal dimensions exceeding 75 mm shall be made from (IEC 60335-2-89/A2)		
	- glass that shatters breaks in small pieces when broken it fractures; or		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	- glass that is not released or dropped from its normal position when broken.		N/A
	Test as specified		N/A
22.105	The mass of refrigerant (flammable refrigerant) shall not exceed 150g (IEC 60335-2-89)	See marking plate on page 04-07	P
22.106	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 60335-2-89)	Inside food storage compartment	P
22.106.1	A leakage is simulated at the most critical point of the cooling system (method as specified) (IEC 60335-2-89)		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 60335-2-89)		N/A
	The concentration is not measured close to (IEC 60335-2-89):		—
	- non self-resetting devices necessary for compliance with Clause 19 even if they produce arcs or sparks during operation,		N/A
	- intentionally weak parts that become permanently open-circuited during the tests of Clause 19 even if they produce arcs or sparks during operation,		N/A
	- electrical apparatus that has been tested and found in to comply with at least the requirements in Annex BB		N/A
22.106.2	All accessible surfaces of protected cooling system components, are scratched using the tool whose tip is shown in figure 102 (IEC 60335-2-89)		P
	The tool is applied using the following parameters (IEC 60335-2-89):		P
	- force at right angles to the surface to be tested 35 N + 3 N		P
	- force parallel to the surface to be tested 250 N ...		P
	The appropriate part shall withstand the test of 22.7 reduced by 50%		P
22.107	Compression-type appliances with unprotected cooling systems and which use flammable refrigerants, any electrical apparatus located inside the food storage compartment, which during normal operation or abnormal operation produces arcs or sparks, use luminaries, is tested and comply with the requirements of Annex BB for group IIA gases or the refrigerant used (IEC 60335-2-89).		P
	These requirements do not apply to (IEC 60335-2-89):		-

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	- non self-resetting protective devices necessary for compliance with Clause 19, nor to		N/A
	- intentionally weak parts that become permanently open-circuited during the tests of Clause 19,		N/A
	even if they produce arcs or sparks during operation		N/A
	Refrigerant leakage into food storage shall not result in an explosive atmosphere outside the food storage compartment in areas where electrical components that produce arcs and sparks during normal operation or abnormal operation, or luminaries are mounted, when doors or lids remain closed or when opening or closing doors or lids, unless these components have been tested and in conformity with Annex BB for group IIA gases or the refrigerant used (IEC 60335-2-89)		P
22.108	Compression-type appliance which use flammable refrigerants is constructed so that leaked refrigerant will not stagnate and thus cause a fire or explosion hazard in areas outside the food storage compartments where components producing arcs or sparks, or luminaries are mounted (IEC 60335-2-89)		P
	This requirement does not apply to areas where (IEC 60335-2-89)		N/A
	- non self-resetting protective devices necessary for compliance with Clause 19 or,		N/A
	- intentionally weak parts that become permanently open circuited during the test of Clause 19		N/A
	are mounted, even if they produce arcs and sparks during operation (IEC 60335-2-89)		N/A
	Compliance is checked by the following test unless luminaries and components that produce arcs and sparks during normal operation and which are mounted in the areas under consideration, have been tested and comply with the requirements in Annex BB for group IIA gases or the refrigerant used (IEC 60335-2-89)		P
	Test: A quantity equal to 50% $\pm$ 1,5g of the refrigerant charge is injected into the considered area (IEC 60335-2-89)		P
	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 60335-2-89)		P
22.109	Temperatures on surfaces that may be exposed to leakage of flammable refrigerants shall not exceed the auto-ignition temperature (table 102) reduced by 100 K (IEC 60335-2-89/A2)		P

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
22.110	The interior of compartments, in appliances with a free space which is enclosed by sliding doors or sliding lids, shall be visible from the outside with doors or lids closed (IEC 60335-2-89)		N/A
22.111	Doors and lids of compartments in appliances with a free space, others than those with sliding doors or lids, shall be capable of being opened from the inside (IEC 60335-2-89)		P
	The door shall open before the force exceeds 70 N (IEC 60335-2-89)		P
22.112	Drawers which are only accessible after openings a door or lid shall not contain a free space (IEC 60335-2-89)		N/A
22.113	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 60335-2-89)		N/A
	The drawers shall open before the force exceeds 70 N (IEC 60335-2-89)		N/A
22.114	Split-system appliances that use a flammable refrigerant are not be fitted with precharged interconnection refrigerant piping (IEC 60335-2-89)		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
	Open-coil springs not used		N/A
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	No damage after 10 000 flexings for conductors flexed during normal use, or		N/A
	100 flexings for conductors flexed during user maintenance		N/A
	Electric strength test of 16.3, 1000 V between live parts and accessible metal parts		N/A
	Not more than 10% of the strands of any conductor broken, and		N/A
	not more than 30% for wiring supplying circuits that consume no more than 15W		N/A
	Instead of the test being carried out while the appliance is in operation, it is carried out with the appliance disconnected from the supply (IEC 60335-2-89)		N/A
	The number of flexing for conductors flexed during normal use is increased to 200 000 (IEC 60335-2-89)		N/A
23.4	Bare internal wiring sufficiently rigid and fixed		N/A
23.5	The insulation of internal wiring subjected to the supply mains voltage withstanding the electrical stress likely to occur in normal use		P
	Basic insulation electrically equivalent to the basic insulation of cords complying with IEC 60227 or IEC 60245, or		N/A
	no breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P
	For class II construction, the requirements for supplementary insulation and reinforced insulation apply, (IEC60335-1/A1)		P
	except that the sheath of a cord complying with IEC 60227 or IEC 60245 may provide supplementary insulation. (IEC60335-1/A1)		N/A
	A single layer of internal wiring insulation does not provide reinforced insulation		N/A
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by clamping at both ends, or		N/A
	be such that it can only be removed by breaking or cutting		N/A
23.7	The colour combination green/yellow only used for earthing conductors		N/A
23.8	Aluminium wires not used for internal wiring		P

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
23.9	Stranded conductors not consolidated by soldering where they are subjected to contact pressure, unless		P
	the contact pressure is provided by spring terminals		N/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 (IEC60335-1/A1)		P
	List of components ..... :	(see appended table)	P
	Motors not required to comply with IEC 60034-1, they are tested as part of the appliance (IEC60335-1/A1)		P
	Relays tested as part of the appliance, or (IEC60335-1/A1)		N/A
	alternatively, acc. to IEC 60730-1, and meeting the additional requirements in IEC 60335-1 (IEC60335-1/A1)		N/A
	The requirements of Clause 29 apply between live parts of components and accessible parts of the appliance (IEC60335-1/A1)		P
	Components can comply with the requirements for clearances and creepage distances for functional insulation in the relevant component standard		P
	30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections (IEC60335-1/A1)		P
	Components that have not been previously tested to comply with the IEC standard for the relevant component are tested according to the requirements of 30.2 (IEC60335-1/A1)		P
	Components that have been previously tested to comply with the resistance to fire requirements in the IEC standard for the relevant component need not be retested provided the specified conditions are met		N/A
	If these conditions are not satisfied, the component is tested as part of the appliance.		N/A
	Power electronic converter circuits not required to comply with IEC 62477-1, they are tested as part of the appliance		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	If components have not been tested and found to comply with relevant IEC standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		N/A
	For components mentioned in 24.1.1 to 24.1.9 no additional tests specified in the relevant component standard are necessary other than those specified in 24.1.1 to 24.1.9		P
	Components not tested and found to comply with relevant IEC standard and components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		P
	Lampholders and starterholders that have not being tested and found to comply with the relevant IEC standard, tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant IEC standard		N/A
	No additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of IEC 60320-1 and IEC 60309		P
	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 60335-2-89)		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, comply with IEC 60384-14		P
	If the capacitors have to be tested, they are tested according to Annex F		N/A
24.1.2	Transformers in associated switch mode power supplies comply with Annex BB of IEC 61558-2-16 (IEC60335-1/A1)		N/A
	Safety isolating transformers comply with IEC 61558-2-6		N/A
	If they have to be tested, they are tested according to Annex G		N/A
24.1.3	Switches comply with IEC 61058-1, the number of cycles of operation being at least 10 000		P
	If they have to be tested, they are tested according to Annex H		N/A
	If the switch operates a relay or contactor, the complete switching system is subjected to the test		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict

	If the switch only operates a motor staring relay complying with IEC 60730-2-10 with the number of cycles of a least 10 000 as specified, the complete switching system need not be tested			N/A
	The number of operations for other switches (IEC 60335-2-89):			—
	- quick-freeze switches:		300	N/A
	- manual and semi-automatic defrost switches		300	N/A
	-door switches			N/A
	-on/off switches		300	P
24.1.4	Automatic controls comply with IEC 60730-1 with the relevant part 2. The number of cycles of operation being at least:			—
	- 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
	- thermostats which control a motor-compressor (IEC 60335-2-89):	100 000		P
	- temperature limiters which control defrosting heaters (IEC 60335-2-89):	100 000		N/A
	- motor-compressor starting relays (IEC 60335-2-89):	100 000		P
	- self resetting thermal motor-protectors for motor-compressors: or the number of operations during the 15-day locked-rotor test, whichever is the greater (IEC 60335-2-89)	2 000		P
	- non-self-resetting thermal motor-protectors for motor-compressors (IEC 60335-2-89):	50		N/A
	- other automatic thermal motor-protectors except for fan motors (IEC 60335-2-89):	2 000		N/A
	- other manual reset thermal motor-protectors (IEC 60335-2-89):	30		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	- 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 (IEC 60335-2-89): 1		N/A
	- electrical pressure relief device (IEC 60335-2-89)		—
	for automatic operation: 30 000		N/A
	for manual reset: 300		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
	Thermal cut-outs of the capillary type comply with the requirements for type 2.K controls in IEC 60730-2-9 (IEC60335-1/A1)		N/A
	Electrical pressure relief devices shall comply with IEC 60730-2-6 and shall be of type 2B and type 2N (IEC 60335-2-89);		—
	– shall have a trip free mechanism of type 2E;		N/A
	– the deviation and drift shall not exceed + 0%.		N/A
	For mechanical pressure relief devices not falling under the scope of IEC 60730, the operating pressure must be no more than the setting of the device plus 10 % (IEC 60335-2-89).		N/A
	Pressure relief devices of the bursting disc type that are not certified to ISO 4126-2 shall be tested as part of the appliance to 14.3.4 of ISO 4126-2 and shall be marked with (IEC 60335-2-89/A1): - name, trademark or identification mark of the manufacturer or responsible vendor - model name or type reference		N/A
24.1.5	Appliance couplers comply with IEC 60320-1		P
	However, for class II appliances classified higher than IPX0, the appliance couplers comply with IEC 60320-2-3 (IEC60335-1/A1)		N/A
	Interconnection couplers comply with IEC 60320-2-2		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
24.1.6	Small lamp holders similar to E10 lampholders comply with IEC 60238, the requirements for E10 lampholders being applicable		N/A
24.1.7	For remote operation of the appliance via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151		N/A
24.1.8	The relevant standard for thermal links is IEC 60691		N/A
	Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of Clause 19		N/A
24.1.9	Contactors and relays, other than motor starting relays, tested as part of the appliance		N/A
	They are also tested in accordance with Clause 17 of IEC 60730-1, the number of cycles of operations in 24.1.4 selected according to the contactor or relay function in the appliance ..... :		N/A
24.2	Appliances not fitted with:		—
	- switches or automatic controls in flexible cords		P
	- devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		P
	- thermal cut-outs that can be reset by soldering, unless		P
	the solder has a melding point of at least 230 ˚C		N/A
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and have a contact separation in all poles, providing full disconnection under overvoltage category III conditions		N/A
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		N/A
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance, and used accordingly		N/A
	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	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 60335-2-89)		N/A
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42 V		N/A
	In addition, the motors comply with the requirements of Annex I		N/A
24.7	Detachable hose-sets for connection of appliances to the water mains comply with IEC 61770		N/A
	They are supplied with the appliance		N/A
	Appliances intended to be permanently connected to the water mains not connected by a detachable hose-set		N/A
	For coupling nuts used with hose-sets marked 25 °C max, the 96h ageing test is carried out at a temperature of (IEC 60335-2-89/A2):		
	32 °C ± 2 °C on hoses sets supplied with appliances of climatic class 0, 1, 2, 3, 4, 6 or 8;		N/A
	43 °C ± 2 °C on hoses sets supplied with appliances of climatic class 5 or 7.		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:		—
	- the capacitors are of class P2 according to IEC 60252-1		N/A
	- the capacitors are housed within a metallic or ceramic enclosure		N/A
	- 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	Pressure relief devices shall be such that they are able to operate so that the pressure during abnormal operation of the appliance does not increase beyond the pressure setting of the pressure relief device, even if the compressor is operating. (IEC 60335-2-89/A2).		N/A
25	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS**		—

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	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 60335-2-89)		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, the current rating and voltage rating of the plug being not less than the corresponding ratings of its associated appliance (IEC60335-1/A1)		N/A
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance, or		N/A
	- pins for insertion into socket-outlets		—
25.2	Mains-operated appliances not provided with more than one means of connection to the supply unless (IEC 60335-2-89)		N/A
	- the appliance consists of two or more completely independent units built together in one enclosure		N/A
	- the relevant circuits are adequately insulated from each other		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, knockouts 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

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10 (mm)..... :		N/A
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in clause 29		N/A
25.5	Method for assembling the supply cord to the appliance:		—
	- type X attachment	DC connector	N/A
	- type Y attachment		N/A
	- type Z attachment, if allowed in relevant part 2		N/A
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N/A
	For multi-phase appliances supplied with a supply cord and that are intended to be permanently connected to fixed wiring, the supply cord is assembled to the appliance by type Y attachment		N/A
25.6	Plugs fitted with only one flexible cord		N/A
25.7	Supply cords, other than for class III appliances, being one of the following types:		—
	- rubber sheathed (at least 60245 IEC 53)		
	- polychloroprene sheathed (at least 60245 IEC 57)		
	- polyvinyl chloride sheathed. Not used if they are likely to touch metal parts having a temperature rise exceeding 75 K during the test of clause 11		—
	• light polyvinyl chloride sheathed cord (60227 IEC 52), for appliances not exceeding 3 kg		N/A
	• ordinary polyvinyl chloride sheathed cord (60227 IEC 53), for other appliances		N/A
	- heat resistant polyvinyl chloride sheathed. Not used for type X attachment other than specially prepared cords		—
	• heat-resistant light polyvinyl chloride sheathed cord (60227 IEC 56), for appliances not exceeding 3 kg		N/A
	• heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), for other appliances		N/A
	Supply cords for class III appliances adequately insulated		N/A
	Test with 500 V for 2 min for supply cords of class III appliances that contain live parts		N/A
25.8	Nominal cross-sectional area of supply cords not less than table 11; rated current (A); cross-sectional area (mm^2) ..... :		P

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
25.9	Supply cords not in contact with sharp points or edges		P
25.10	Supply cord of class I appliances have a green/yellow core for earthing		N/A
	In multi-phase appliances, the colour of the neutral conductor of the supply cord is blue. (IEC60335-1/A1)		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 it is not evident that the supply cord can be introduced without risk of damage, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided (IEC60335-1/A1)		N/A
	If unsheathed supply cord, a similar additional bushing or lining is required, unless the appliance is		N/A
	class 0, or		N/A
	a class III appliance not containing live parts		N/A
25.14	Supply cords moved while in operation adequately protected against excessive flexing		N/A
	Flexing test, as described:		—
	- applied force (N) ..... :		N/A
	- number of flexings ..... :		N/A
	The test does not result in:		—
	- short-circuit between the conductors, such that the current exceeds a value of twice the rated current		N/A
	- breakage of more than 10% of the strands of any conductor		N/A
	- separation of the conductor from its terminal		N/A
	- loosening of any cord guard		N/A
	- damage to the cord or the cord guard		N/A
	- broken strands piercing the insulation and becoming accessible		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
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:		—
	- fixed appliances: pull 100 N; torque (not on automatic cord reel) (Nm) ..... :		N/A
	- other appliances: values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm) ..... :		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 supply cord		N/A
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless		N/A
	they are separated from accessible metal parts by supplementary insulation		N/A
	- the cord is not clamped by a metal screw which bears directly on the cord		N/A
	- at least one part of the cord anchorage securely fixed to the appliance, unless		N/A
	it is part of a specially prepared cord		N/A
	- screws which have to be operated when replacing the cord do not fix any other component, unless		N/A
	the appliance becomes inoperative or incomplete or the parts cannot be removed without a tool		N/A
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N/A
	- for class 0, 0I and I appliances they are of insulating material or are provided with an insulating lining, unless		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	failure of the insulation of the cord does not make accessible metal parts live		N/A
	- for class II appliances they are of insulating material, or		N/A
	if of metal, they are insulated from accessible metal parts by supplementary insulation		N/A
	After the test of 25.15, under the conditions specified, the conductors have not moved by more than 1 mm in the terminals		N/A
25.17	Adequate cord anchorages for type Y and Z attachment, test with the cord supplied with the appliance		N/A
25.18	Cord anchorages only accessible with the aid of a tool, or		N/A
	Constructed so that the cord can only be fitted with the aid of a tool		N/A
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N/A
	Tying the cord into a knot or tying the cord with string not used		N/A
25.20	The conductors of the supply cord for type Y and Z attachment insulated from accessible metal parts		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		N/A
	- so there is no risk of damage to the conductors or their insulation when fitting the cover		N/A
	- for portable appliances, so that the uninsulated end of a conductor, if it becomes free from the terminal, prevented from contact with accessible metal parts		N/A
	2 N test to the conductor for portable appliances; no contact with accessible metal parts		N/A
25.22	Appliance inlets:		—
	- live parts not accessible during insertion or removal		N/A
	Requirement not applicable to appliance inlets complying with IEC 60320-1		N/A
	- connector can be inserted without difficulty		N/A
	- the appliance is not supported by the connector		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	- not for cold conditions if temp. rise of external metal parts exceeds 75 K during clause 11, unless		N/A
	the supply cord is unlikely to touch such metal parts		N/A
25.23	Interconnection cords comply with the requirements for the supply cord, except that:		N/A
	- the cross-sectional area of the conductors is determined on the basis of the maximum current during clause 11		N/A
	- the thickness of the insulation may be reduced		N/A
	If necessary, electric strength test of 16.3		N/A
25.24	Interconnection cords not detachable without the aid of a tool if compliance with this standard is impaired when they are disconnected		N/A
25.25	Dimensions of pins that are inserted into socket-outlets compatible with the dimensions of the relevant socket-outlet.		N/A
	Dimensions of pins and engagement face in accordance with the dimensions of the relevant plug in IEC/TR 60083		N/A
26	**TERMINALS FOR EXTERNAL CONDUCTORS**		—
	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 60335-2-89)		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
	Earthing terminals may be accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection		N/A
26.2	Appliances with type X attachment and appliances for the connection of cables to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless		N/A
	the connections are soldered		N/A
	Screws and nuts not used to fix any other component, except		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N/A
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone, unless		N/A
	barriers provided so that neither clearances nor creepage distances between live parts and other metal parts reduced below the values for supplementary insulation if the conductor becomes free at the soldered joint		N/A
26.3	Terminals for type X attachment and for connection of cables of fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure but without damaging the conductor		N/A
	Terminals fixed so that when the clamping means is tightened or loosened:		—
	- the terminal does not become loose		N/A
	- internal wiring is not subjected to stress		N/A
	- neither clearances nor creepage distances are reduced below the values in clause 29		N/A
	Compliance checked by inspection and by the test of subclause 9.6 of IEC 60999-1, the torque applied being equal to two-thirds of the torque specified (Nm) ..... :		N/A
	No deep or sharp indentations of the conductors		N/A
26.4	Terminals for type X attachment, except those having a specially prepared cord and those for the connection of cables of fixed wiring, no special preparation of conductors such as by soldering, use of cable lugs, eyelets or similar, and		N/A
	so constructed or placed that conductors prevented from slipping out when clamping screws or nuts are tightened		N/A
26.5	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard		N/A
	Stranded conductor test, 8 mm insulation removed		N/A
	No contact between live parts and accessible metal parts and,		N/A
	for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
26.6	Terminals for type X attachment and for connection of cables of fixed wiring suitable for connection of conductors with cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm²) ..... :		N/A
	If a specially prepared cord is used, terminals need only be suitable for that cord		N/A
26.7	Terminals for type X attachment, except in class III appliances not containing live parts, accessible after removal of a cover or part of the enclosure		N/A
26.8	Terminals for the connection of fixed wiring, including the earthing terminal, located close to each other		N/A
26.9	Terminals of the pillar type constructed and located as specified		N/A
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless		N/A
	conductors ends fitted with means suitable for screw terminals		N/A
	Pull test of 5 N to the connection		N/A
26.11	For type Y and Z attachment, soldered, welded, crimped or similar connections may be used		N/A
	For Class II appliances, the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N/A
	If soldering, welding or crimping alone used, barriers provided so that clearances and creepage distances between live parts and other metal parts are not reduced below the values for supplementary insulation if the conductor becomes free		N/A
27	**PROVISION FOR EARTHING**		—
	Compliance is not checked on parts related to motor-compressors if the motor-compressor complies with IEC 60335-2-34 (IEC 60335-2-89)		N/A
27.1	Accessible metal parts of Class 0I and I appliances permanently and reliably connected to an earthing terminal or earthing contact of the appliance inlet		N/A
	Earthing terminals and earthing contacts not connected to the neutral terminal		N/A
	Class 0, II and III appliances have no provision for protective earthing (IEC60335-1/A1)		N/A
	Class II appliances and class III appliances can incorporate an earth for functional purposes (IEC60335-1/A1)		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	Safety extra-low voltage circuits not earthed, unless		N/A
	protective extra-low voltage circuits		N/A
27.2	Clamping means of earthing terminals adequately secured against accidental loosening		N/A
	Terminals for the connection of external equipotential bonding conductors allow connection of conductors of 2.5 to 6 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
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes (IEC60335-1/A1)		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
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes (IEC60335-1/A1)		N/A
27.4	No risk of corrosion resulting from contact between parts of the earthing terminal and the copper of the earthing conductor or other metal		N/A
	Parts providing earthing continuity, other than parts of a metal frame or enclosure, have adequate resistance to corrosion		N/A
	If of steel, these parts provided with an electroplated coating with a thickness at least 5 µm		N/A
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N/A
	In the body of the earthing terminal is a part of a frame or enclosure of aluminium or aluminium alloys, precautions taken to avoid risk of corrosion		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes (IEC60335-1/A1)		N/A
27.5	Low resistance of connection between earthing terminal and earthed metal parts		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided the clearances of basic insulation are based on the rated voltage of the appliance		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes (IEC60335-1/A1)		N/A
	Resistance not exceeding 0,1 Ω at the specified low-resistance test (Ω) ..... :		N/A
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand-held appliances.		N/A
	They may be used to provide earthing continuity in other appliances if at least two tracks are used with independent soldering points and the appliance complies with 27.5 for each circuit		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes (IEC60335-1/A1)		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 60335-2-89)		P
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium		P
	Diameter of screws of insulating material min. 3 mm		N/A
	Screws of insulating material not used for any electrical connections or connections providing earthing continuity		N/A
	Screws used for electrical connections or connections providing earthing continuity screwed into metal		P
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		P
	For type X attachment, screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw impairs basic insulation		N/A
	For screws and nuts; torque-test as specified in table 14 ..... :	(see appended table)	N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure is not transmitted through non-ceramic insulating material liable to shrink or distort, unless		P
	there is resiliency in the metallic parts to compensate for shrinkage or distortion of the insulating material		N/A
	This requirement does not apply to electrical connections in circuits of appliances for which:		—
	• 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		P
	Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread		N/A
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer		N/A
	Thread-cutting, thread rolling, and space threaded screws may be used in connections providing earthing continuity provided it is not necessary to disturb the connection:		—
	- in normal use,		N/A
	- during user maintenance,		N/A
	- when replacing a supply cord having a type X attachment, or		N/A
	- during installation		N/A
	At least two screws being used for each connection providing earthing continuity, unless		N/A
	the screw forms a thread having a length of at least half the diameter of the screw		N/A
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		P
	This requirement does not apply to screws in the earthing circuit if at least two screws are used, or		N/A
	if an alternative earthing circuit is provided		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if the connections are subjected to torsion		N/A
29	**CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION**		—
	Compliance is not checked on parts related to motor-compressors if the motor-compressor complies with IEC 60335-2-34 (IEC 60335-2-89)		P
	Clearances, creepage distances and solid insulation withstand electrical stress		P
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), Annex J applies ..... :		N/A
	The microenvironment is pollution degree 1 under type 1 protection		N/A
	For type 2 protection, the spacing between the conductors before the protection is applied is not less than the values specified in Table 1 of IEC 60664-3		N/A
	These values apply to functional, basic, supplementary and reinforced insulation..... :		N/A
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless..... :	(see appended table)	P
	for basic insulation and functional insulation, they comply with the impulse voltage test of clause 14		P
	However, if the distances are affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500V and above are increased by 0,5 mm and the impulse voltage test is not applicable		N/A
	For appliances intended for use at altitudes exceeding 2 000 m, the clearances in Table 16 is increased according to the relevant multiplier values in Table A.2 of IEC 60664-1 (IEC60335-1/A1)		N/A
	Impulse voltage test is not applicable:		—
	- when the microenvironment is pollution degree 3, or		P
	- for basic insulation of class 0 and class 01 appliances, or		N/A
	- to appliances intended for use at altitudes exceeding 2 000 m		N/A
	Appliances are in overvoltage category II		P

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Clause	Requirement + Test	Result - Remark	Verdict
	A force of 2 N is applied to bare conductors, other than heating elements		N/A
	A force of 30 N is applied to accessible surfaces		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		P
	The values of table 16 or the impulse voltage test of clause 14 are applicable ..... :	(see appended table)	P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1,0 mm if the microenvironment is pollution degree 1		N/A
	Lacquered conductors of windings considered to be bare conductors		P
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16:	(see appended table)	N/A
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, using the next higher step for rated impulse voltage ..... :	(see appended table)	P
	For double insulation, with no intermediate conductive part between basic and supplementary insulation, clearances are measured between live parts and the accessible surface, and the insulation system is treated as reinforced insulation		N/A
29.1.4	Clearances for functional insulation are the largest values determined from:		—
	- table 16 based on the rated impulse voltage ..... :	(see appended table)	P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		N/A
	the microenvironment is pollution degree 3, or		P
	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		P
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
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 are based on the working voltage used as the rated voltage in table 15		N/A
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree ..... :	(see appended table)	P
	Pollution degree 2 applies, unless		N/A
	- precautions taken to protect the insulation; pollution degree 1		N/A
	- insulation subjected to conductive pollution; pollution degree 3		P
	A force of 2 N is applied to bare conductors, other than heating elements		N/A
	A force of 30 N is applied to accessible surfaces		P
	In a double insulation system, the working voltage for both the basic and supplementary insulation is taken as the working voltage across the complete double insulation system		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	Insulation in refrigeration appliances and icemakers is in pollution degree 3 and shall have a CTI value of 250 unless the insulation to be protected to pollution by condensation (IEC 60335-2-89)		N/A
29.2.1	Creepage distances of basic insulation not less than specified in table 17 ..... :	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 17 ..... :		N/A
	Except for pollution degree 1, corresponding creepage distance not less than the minimum specified for the clearance in table 16, if the clearance has been checked according to the test of clause 14 ..... :		N/A
29.2.2	Creepage distances of supplementary insulation at least those specified for basic insulation in table 17, or ..... :	(see appended table)	N/A
	Table 2 of IEC 60664-4, as applicable ..... :		N/A
29.2.3	Creepage distances of reinforced insulation at least double those specified for basic insulation in table 17, or ..... :	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable ..... :		N/A
29.2.4	Creepage distances of functional insulation not less than specified in table 18 ..... :	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 18 ..... :		N/A
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
29.3	Supplementary and reinforced insulation have adequate thickness, or a sufficient number of layers, to withstand the electrical stresses		P
	Compliance checked:		—
	- by measurement, in accordance with 29.3.1, or		P
	- by an electric strength test in accordance with 29.3.2, or		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	- for insulation, other than single layer internal wiring insulation, by an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3, and (IEC60335-1/A1)		N/A
	for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, or (IEC60335-1/A1)		N/A
	- by an assessment of the thermal quality of the material according to 29.3.3 combined with an electric strength test in accordance with 23.5, for each single layer internal wiring insulation touching each other, or (IEC60335-1/A1)		N/A
	- as specified in subclause 6.3 of IEC 60664-4 for insulation that is subjected to any periodic voltage having a frequency exceeding 30 kHz		N/A
29.3.1	Supplementary insulation has a thickness of at least 1 mm		N/A
	Reinforced insulation has a thickness of at least 2 mm		P
29.3.2	Each layer of material withstands the electric strength test of 16.3 for supplementary insulation		N/A
	Supplementary insulation consists of at least 2 layers		N/A
	Reinforced insulation consists of at least 3 layers		N/A
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N/A
	the electric strength test of 16.3		N/A
	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..... :		P
30	**RESISTANCE TO HEAT AND FIRE**		—
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	parts of thermoplastic material providing supplementary or reinforced insulation		P
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2		P

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	External parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C)..... :	(see appended table 30.1)	P
	Parts supporting live parts tested at 40°C plus the maximum temperature rise determined during the test of clause 11, or at 125 °C, whichever is the higher; temperature (°C) ..... :	(see appended table 30.1)	P
	Parts of thermoplastic material providing supplementary or reinforced insulation tested at 25 °C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C) ..... :	(see appended table 30.1)	N/A
	For accessible parts of non-metallic material within the food storage compartment, the temperature of 75°C ± 2°C is replaced by 65°C ± 2°C (IEC 60335-2-89)		N/A
	Following tests do not apply to parts related to the motor-compressor if the motor-compressor complies with IEC 60335-2-34 (IEC 60335-2-89)		P
30.2	Parts of non-metallic material resistant to ignition and spread of fire		P
	This requirement does not apply to:		—
	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
	Compliance checked by the test of 30.2.1, and in addition:		P
	- for attended appliances, 30.2.2 applies		N/A
	- for unattended appliances, 30.2.3 applies		P
	For appliances for remote operation, 30.2.3 applies		N/A
	For base material of printed circuit boards, 30.2.4 applies		P
	Following tests do not apply to parts related to the motor-compressor if the motor-compressor complies with IEC 60 335-2-34 with no ignition (IEC 60335-2-89)		P
30.2.1	Parts of non-metallic material subjected to the glow-wire test of IEC 60695-2-11 at 550°C	(see appended table 30.2)	P

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	However, test not carried out if the material is classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 550 °C, or		N/A
	the material is classified at least HB40 according to IEC 60695-11-10		N/A
	Parts for which the glow-wire test cannot be carried out need to meet the requirements in ISO 9772 for material classified HBF		N/A
30.2.2	Appliances operated while attended, parts of non-metallic material supporting current-carrying connections, and		N/A
	parts of non-metallic material within a distance of 3mm of such connections,		N/A
	subjected to the glow-wire test of IEC 60695-2-11 with appropriate severity level:	(see appended table 30.2)	N/A
	- 750 °C, for connections carrying a current exceeding 0,5 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least:		—
	- 750 °C, for connections carrying a current exceeding 0,5 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	The glow-wire test is also not carried out on small parts. These parts are to:		—
	- 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	(see appended table 30.2/30.4)	N/A
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10 ..... :		N/A
	Glow-wire test not applicable to conditions as specified ..... :		N/A
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		P
	The tests are not applicable to conditions as specified ..... :		N/A
30.2.3.1	Parts of non-metallic material supporting connections carrying a current exceeding 0,2 A during normal operation, and		P

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	parts of non-metallic material, other than small parts, within a distance of 3 mm,		P
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850 °C	(see appended table 30.2)	P
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 850 °C		N/A
30.2.3.2	Parts of non-metallic material supporting connections, and		P
	parts of non-metallic material within a distance of 3mm,		P
	subjected to the glow-wire test of IEC 60695-2-11 with appropriate severity level:	(see appended table 30.2)	P
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		P
	- 650 °C, for other connections		N/A
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	However, the glow-wire test of 750 °C or 650 °C as appropriate, is not carried out on parts of material fulfilling both or either of the following classifications:		—
	- a glow-wire ignition temperature according to IEC 60695-2-13 of at least:		
	• 775 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	• 675 °C, for other connections		N/A
	- a glow-wire flammability index according to IEC 60695-2-12 of at least:		
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	The glow-wire test is also not carried out on small parts. These parts are to:		—
	- 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

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	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		P
	- 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 the needle-flame test of Annex E	(see appended table 30.2/30.4)	N/A
	Test not applicable to conditions as specified ..... :		P
31	**RESISTANCE TO RUSTING**		—
	Relevant ferrous parts adequately protected against rusting		
	Tests specified in part 2 when necessary		
32	**RADIATION, TOXICITY AND SIMILAR HAZARDS**		—
	Appliance does not emit harmful radiation or present a toxic or similar hazard due to their operation in normal use		P
	Compliance is checked by the limits or tests specified in part 2, if relevant		N/A
A	**ANNEX A (INFORMATIVE)** **ROUTINE TESTS**		—

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	Description of routine tests to be carried out by the manufacturer		P
AA	**ANNEX AA, (NORMATIVE) LOCKED-ROTOR TEST OF FAN MOTORS (IEC 60335-2-89)**		—
	The winding of a fan motor does not reach excessive temperatures if the motor locks or fails to start		P
	The motor is supplied at rated voltage according to supply circuit fig. AA.1.		P
B	**ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE RECHARGED IN THE APPLIANCE**		—
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance (IEC60335-1/A1)		N/A
	Three forms of construction covered:		—
	a) Appliance supplied directly from the supply mains or a renewable energy source, the battery charging circuitry and other supply unit circuitry incorporated within the appliance (IEC60335-1/A1)		N/A
	b) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the part of the appliance containing the battery (IEC60335-1/A1)		N/A
	c) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the detachable supply unit (IEC60335-1/A1)		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

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Clause	Requirement + Test	Result - Remark	Verdict
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		N/A
5.B.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances		N/A
7.1	Battery compartment for batteries intended to be replaced by the user, marked with battery voltage (V) 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
	Appliances intending to be supplied from a detachable supply unit marked with symbol IEC 60417-6181 and its type reference along with symbol ISO 7000-0790 (2004-01), or (IEC60335-1/A1)		N/A
	use only with <model designation> supply unit ..... :		N/A
7.6	Additional symbols (IEC60335-1/A1)		N/A
7.12	The instructions give information regarding charging		N/A
	The instructions for appliances incorporating batteries intended to be replaced by the user includes required information		N/A
	Details about how to remove batteries containing materials hazardous to the environment given		N/A
	For appliances intending to be supplied from a detachable supply unit for the purposes of recharging the battery, the type reference of the detachable supply unit is stated along with the following: (IEC60335-1/A1)		—
	WARNING: For the purposes of recharging the battery, only use the detachable supply unit provided with this appliance (IEC60335-1/A1)		N/A
	If the symbol for detachable supply unit is used, its meaning is explained (IEC60335-1/A1)		N/A
7.15	Markings placed on the part of the appliance connected to the supply mains		N/A
	The type reference of the detachable supply unit is placed in close proximity to the symbol (IEC60335-1/A1)		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 stated in the instructions or 24 h ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
11.8	Temperature rise of the battery surface does not exceed the limit in the battery manufacturer's specification; measured (K); limit (K) (IEC60335-1/A1)..... :		N/A
	If no limit specified, the temperature rise does not exceed 20 K; measured (K) ..... :		N/A
19.1	Appliances subjected to tests of 19.B.101, 19.B.102 and 19.B.103		N/A
19.10	Not applicable		N/A
19.B.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		N/A
19.B.102	For appliances having batteries that can be removed without the aid of a tool, short-circuit of the terminals of the battery, the battery being fully charged,		N/A
19.B.103	Appliances having batteries replaceable by the user supplied at rated voltage under normal operation with the battery removed or in any position allowed by the construction		N/A
19.13	The battery does not rupture or ignite (IEC60335-1/A1)		N/A
21.B.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength		N/A
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-31, the number of falls being:		—
	- 100, if the mass of the part does not exceed 250 g (g)..... :		N/A
	- 50, if the mass of the part exceeds 250 g ..... :		N/A
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N/A
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N/A
25.13	An additional lining or bushing not required for interconnection cords in class III appliances or class III constructions operating at safety extra-low voltage not containing live parts		N/A
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N/A
	For other parts, 30.2.2 applies		N/A
BB	**ANNEX BB (NORMATIVE)** **NON-SPARKING "N" ELECTRICAL APPARATUS (IEC 60335-2-89)**		—
	Where reference is made to IEC 60079-15, the following clauses are applicable as modified below		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
11	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		N/A
16	Clause 16 is applicable		N/A
17	Clause 17 is applicable		N/A
18	Clause 18 is applicable		N/A
19	All of the subclauses of 19 are applicable, except 19.1 and 19.6, which are replaced by the following		N/A
19.1	Seals are tested using 22.5		N/A
	However, if the device is tested in the appliance, then 22.5.1 and 22.5.2 are not applicable.		N/A
	After the tests of Clause 19 in IEC 60335-2-89, by inspection, no damage that could impair the type of protection shall be evident		N/A
19.6	The type tests described in 22.5 shall be performed where relevant		N/A
20	Clause 20 is applicable		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
	Test conditions as specified		N/A
	This annex does not apply to motor-compressors (IEC 60335-2-89)		P
D	**ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS**		—
	Applicable to appliances having motors that incorporate thermal motor protectors necessary for compliance with the standard		N/A
	Test conditions as specified		N/A
	This annex does not apply to motor-compressors or condenser fan motors (IEC 60335-2-89)		P
E	**ANNEX E (NORMATIVE) NEEDLE-FLAME TEST**		—
	Needle-flame test carried out in accordance with IEC 60695-11-5, with the following modifications:		
7	Severities		
	The duration of application of the test flame is 30 s ± 1 s		N/A
9	Test procedure		—

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
9.1	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1		N/A
9.2	The first paragraph does not apply		N/A
	If possible, the flame is applied at least 10 mm from a corner		N/A
9.3	The test is carried out on one specimen		N/A
	If the specimen does not withstand the test, the test may be repeated on two additional specimens, both withstanding the test		N/A
11	Evaluation of test results		—
	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**		—
	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:		
1.5	Terms and definitions		—
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		
3.4	Approval testing		—
3.4.3.2	Table 3 is applicable as described		
4.1	Visual examination and check of dimensions		—
	This subclause is applicable		
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 11 is applicable		N/A
	Values for test A apply		N/A
	However, for capacitors in heating appliances the values for test B or C apply		N/A
4.12	Damp heat, steady state		—
	This subclause is applicable		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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 are applicable		N/A
4.14.7	Only insulation resistance and voltage proof are checked		N/A
	No visible damage		N/A
4.17	Passive flammability test		—
	This subclause is applicable		N/A
4.18	Active flammability test		—
	This subclause is applicable		
G	**ANNEX G (NORMATIVE)** **SAFETY ISOLATING TRANSFORMERS**		**—**
	The following modifications to this standard are applicable for safety isolating transformers:		—
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, 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply		N/A
	For insulated winding wires complying with subclause 19.12.3 of IEC 61558-1 there are no requirements for clearances or creepage distances		N/A
	For windings providing reinforced insulation, the distance specified in item 2c of table 13 of IEC 61558-1 is not assessed		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	For safety isolating transformers subjected to periodic voltages with a frequency exceeding 30 kHz, the clearances, creepage distances and solid insulation values specified in IEC 60664-4 are applicable, if greater than the values specified in items 2a, 2c and 3 in table 13 of IEC 61558-1		N/A
H	**ANNEX H (NORMATIVE) SWITCHES**		—
	Switches comply with the following clauses of IEC 61058-1, as modified below:		—
	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, a switch that can be tested separately from the appliance marked with the manufacturer's name or trademark and the type reference		N/A
13	Mechanism		—
	The tests may be carried out on a separate sample		
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 declared according to 7.1.4 is 10 000, unless		N/A
	otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335 :		N/A
	Switches for operation under no load and which can be operated only by a tool, and		N/A
	switches operated by hand that are interlocked so that they cannot be operated under load,		N/A
	are not subjected to the tests		N/A
	However, switches without this interlock are subjected to the test of 17.2.4.4 for 100 cycles of operation		N/A
	Subclauses 17.2.2 and 17.2.5.2 not applicable		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in IEC 60335-1		N/A
	The temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1 (K) :		N/A
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		—
	Clause 20 is applicable to clearances across full disconnection and micro-disconnection (IEC60335-1/A1)		N/A
	It is also applicable to creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in Table 24 (IEC60335-1/A1)		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:		—
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	The temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N/A
11.8	The temperature rise of the body of the motor, where in contact with insulating material, not exceeding values in table 3 for the relevant insulating material		N/A
16	Leakage current and electric strength		—
16.3	Insulation between live parts of the motor and its other metal parts is not subjected to the test		N/A
19	Abnormal operation		—
19.1	The tests of 19.7 to 19.9 are not carried out		
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

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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:		—
5.7	Conditioning of the test specimens		—
	When production samples are used, three samples of the printed circuit board are tested		N/A
5.7.1	Cold		—
	The test is carried out at -25 °C		
5.7.3	Rapid change of temperature		—
	Severity 1 is specified		
5.9	Additional tests		—
	This subclause is not applicable		
K	**ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES**		—
	The information on overvoltage categories is extracted from IEC 60664-1		P
	Overvoltage category is a numeral defining a transient overvoltage condition		P
	Equipment of overvoltage category IV is for use at the origin of the installation		N/A
	Equipment of overvoltage category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements		N/A
	Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation		P
	If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies		N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict
7.3	Test solutions		—
	Test solution A is used		
10	Determination of proof tracking index (PTI)		—
10.1	Procedure		—
	The proof voltage is 100V, 175V, 400V or 600V.... :		
	The test is carried out on five specimens		P
	In case of doubt, additional test with proof voltage reduced by 25V, the number of drops increased to 100		P
10.2	Report		—
	The report states if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		P
O	**ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30**		—
	Description of tests for determination of resistance to heat and fire		P
P	**ANNEX P (INFORMATIVE) GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMATES**		—
	Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WDaE		—
	Modifications may also be applied to class 1 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WdaE, if liable to be connected to a supply mains that excludes the protective earthing conductor		—
5.7	The ambient temperature for the tests of clauses 11 and 13 is 43°C ± 1 °C (IEC 60335-2-89)		N/A
7.1	The appliance marked with the letters WDaE		N/A
7.12	The instructions state that the appliance is to be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30 mA		N/A
	The instructions state that the appliance is considered to be suitable for use in countries having a warm damp equable climate, but may also be used in other countries		N/A
11.8	The values of Table 3 are reduced by 18 K (IEC 60335-2-89)		N/A
13.2	The leakage current for class I appliances not exceeding 0,5 mA		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
15.3	The value of t is 37 °C		N/A
16.2	The leakage current for class I appliances not exceeding 0,5 mA (mA):		N/A
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N/A
Q	**ANNEX Q (INFORMATIVE)** **SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS**		—
	Description of tests for appliances incorporating electronic circuits		N/A
R	**ANNEX R (NORMATIVE)** **SOFTWARE EVALUATION**		—
	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		—

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Clause	Requirement + Test	Result - Remark	Verdict
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

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Clause	Requirement + Test	Result - Remark	Verdict
R.3.2	Specification		—
R.3.2.1	Software safety requirements:	Software Id:	—
	The specification of the software safety requirements includes the descriptions listed		
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:		—
	- input signals present during normal operation		N/A
	- anticipated occurrences		N/A
	- undesired conditions requiring system action		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

TABLE R.1 e – GENERAL FAULT/ERROR CONDITIONS

Component a	Fault/error	Acceptable measures b, c	Definitions	Document reference for applied measure	Document reference for applied test	Ver-dict
1 CPU 1.1 Registers	Stuck at	Functional test, or periodic self-test using either: static memory test, or word protection with single bit redundancy	H.2.16.5 H.2.16.6 H.2.19.6 H.2.19.8.2			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

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Clause	Requirement + Test	Result - Remark	Verdict

4.3 Addressing (relevant to variable and invariable memory)	Stuck at	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A
5 Internal data path	Stuck at	Word protection with single bit redundancy	H.2.19.8.2			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	Time-slot monitoring, or scheduled transmission Time-slot and logical monitoring, or comparison of redundant communication channels by either: reciprocal comparison independent hardware comparator	H.2.18.10.4 H.2.18.18 H.2.18.10.3 H.2.18.15 H.2.18.3			N/A
	Wrong sequence	Logical monitoring, or time-slot monitoring, or Scheduled transmission	H.2.18.10.2 H.2.18.10.4 H.2.18.18			
7 Input/output periphery	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict

7.2.2 Analog multiplexer	Wrong addressing	Plausibility check	H.2.18.13			N/A
8 VOID						N/A
9 Custom chips d e.g. ASIC, GAL, gate array	Any output outside the static and dynamic functional specification	Periodic self-test	H.2.16.6			N/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.						
a) For fault/error assessment, some components are divided into their sub-functions. b) For each sub-function in the table, the Table R.2 measure will cover the software fault/error. c) Where more than one measure is given for a sub-function, these are alternatives. d) To be divided as necessary by the manufacturer into sub-functions. e) Table R.1 is applied according to the requirements of R.1 to R.2.2.9 inclusive.						

S	**ANNEX S (NORMATIVE)** **BATTERY OPERATED APPLIANCES POWERED BY BATTERIES THAT ARE NON-RECHARGEABLE OR NOT RECHARGED IN THE APPLIANCE (IEC60335-1/A1)**		
	The following modifications to this standard are applicable for battery-operated appliances where the batteries are either non-rechargeable (primary batteries), or		N/A
	rechargeable batteries (secondary batteries) that are not recharged in the appliance		N/A
5.8.1	If the supply terminals for the connection of the battery have no indication of polarity, the more unfavourable polarity is applied		N/A
5.S.101	Appliances intended for use with a battery box are tested with the battery box supplied with the appliance or with the battery box recommended in the instructions		N/A
5.S.102	Appliances are tested as motor-operated appliances.		N/A
7.1	Appliances marked with the battery voltage (V) and the polarity of the terminals, unless.....:		N/A
	the polarity is irrelevant		N/A
	Appliances also marked with:		—
	– name, trademark or identification mark of the manufacturer or responsible vendor .....:		N/A
	– model or type reference.....:		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	– IP number according to degree of protection against ingress of water, other than IPX0 .....:		N/A
	– type reference of battery or batteries .....:		N/A
	If relevant, the positive terminal is indicated by the symbol IEC 60417-5005 and the negative terminal by the symbol IEC 60417-5006		N/A
	If appliances use more than one battery, they are marked to indicate correct polarity connection of the batteries		N/A
7.6	Additional symbols		N/A
7.12	The instructions contain the following, as applicable:		—
	– the types of batteries that may be used .....:		N/A
	– how to remove and insert the batteries		N/A
	– non-rechargeable batteries are not to be recharged		N/A
	– rechargeable batteries are to be removed from the appliance before being charged		N/A
	– different types of batteries or new and used batteries are not to be mixed		N/A
	– batteries are to be inserted with the correct polarity		N/A
	– exhausted batteries are to be removed from the appliance and safely disposed of		N/A
	– if the appliance is to be stored unused for a long period, the batteries are removed		N/A
	– the supply terminals are not to be short-circuited		N/A
11.5	Appliances are supplied with the most unfavourable supply voltage between		—
	– 0,55- and 1,0-times the battery voltage, if the appliance can be used with non-rechargeable batteries		N/A
	– 0,75- and 1,0-times battery voltage, if the appliance is designed for use with rechargeable batteries only		N/A
	The values specified in Table S.101 for the internal resistance per cell of the battery is taken into account		N/A
19.1	The tests are carried out with the battery fully charged unless otherwise specified		N/A
19.13	The battery does not rupture or ignite		N/A
19.S.101	Appliances are supplied with the voltage specified in 11.5. The supply terminals having an indication of polarity are connected to the opposite polarity, unless		N/A

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	such a connection is unlikely to occur due to the construction of the appliance		N/A
19.S.102	For appliances with provision for multiple batteries, one or more of the batteries are reversed and the appliance is operated, if reversal of batteries is allowed by the construction		N/A
25.5	The flexible leads or flexible cord used to connect an external battery or battery box in is connected to the appliance by a type X attachment		N/A
25.13	This requirement is not applicable to the flexible leads or flexible cord connecting external batteries or a battery box with an appliance		N/A
25.S.101	Appliances have suitable means for connection of the battery. If the type of battery is marked on the appliance, the means of connection is suitable for this type of battery		N/A
26.5	Terminal devices in an appliance for the connection of the flexible leads or flexible cord connecting an external battery or battery box are so located or shielded that there is no risk of accidental connection between supply terminals		N/A
30.2.3.2	There is no battery in the area of the vertical cylinder used for the consequential needle flame test, unless		N/A
	the battery is shielded by a barrier that meets the needle flame test of Annex E, or		N/A
	that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

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

10.2	TABLE: Current deviation				P
Current deviation of/at:	**I rated (A)**	**I measured (A)**	**Δ I**	**Required Δ I**	**Remark**
10V DC	3.5	3.5	0%	+20%	P
45V DC	8.5	8.5	0%	+20%	P
Supplementary information:					

11.8	TABLE: Heating test, thermocouple measurements		P
	Test voltage (V) ..... :	9.4V DC/47.7V DC	
	Ambient (°C) ..... :	43°C	

Thermocouple locations	Max. temperature rise measured, dT (K) at 9.4V DC/47.7V DC	Max.temperature rise limit, dT (K)
Compressor top	70°C/70°C	107
Internal wiring	6/3	43
Connection box to the compressor, plastic	28/20	Ref.
Fan	3/2	58
Thermostat		

11.8	TABLE: Heating test, resistance method		P
	Test voltage (V) ..... :	47.7 V Dc	—
	Ambient, t1 (°C) ..... :	43	—
	Ambient, t2 (°C) ..... :	43	—

Temperature rise of winding	R1 (Ω)	R2 (Ω)	dT (K)	Max. dT (K)	Insulation class
Compressor BD35K	1.72	1.98	85 °C	140 °C	Synthetic
Supplementary information: Start and auxiliary windings are equal.					

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict

13.2	TABLE: Leakage current			N/A
	Heating appliances: 1.15 x rated input (W) .....:			—
	Motor-operated and combined appliances: 1.06 x rated voltage (V) .....:			—
Leakage current between:		**I (mA)**	**Max. allowed I (mA)**	
Supplementary information:				

13.3	TABLE: Electric strength		P
Test voltage applied between:		Voltage (V)	Breakdown (Yes/No)
Basic Insulation		1000	No
Reinforced insulation		2500	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			N/A
	Single phase appliances: 1.06 x rated voltage (V) .....:			—
	Three phase appliances 1.06 x rated voltage divided by √3 (V).....:			—
Leakage current between:		**I (mA)**	**Max. allowed I (mA)**	
Supplementary information:				

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict

16.3	TABLE: Dielectric strength		P
Test voltage applied between:		**Test potential applied (V)**	**Breakdown / flashover (Yes/No)**
Basic Insulation		1250	No
Reinforced insulation		2500	No
Supplementary information:			

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict

17	TABLE: Overload protection		N/A
Thermocouple locations:		**Max. temperature rise measured, Δ T (K)**	**Max. temperature rise limit, Δ T (K)**
Supplementary information:			

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

19	Abnormal operation conditions						N/A
Operational characteristics			**YES/NO**	**Operational conditions**			
Are there electronic circuits to control the appliance operation?							
Are there “off” or “stand-by” position?							
The unintended operation of the appliance results in dangerous malfunction?							
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			
19.3							
19.4							
19.5							
19.6				N.A			
19.7							
19.8							
19.9							
19.10							
19.11.2							
19.11.4.8							
19.10X							

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

19.7	TABLE: Abnormal operation, locked rotor/moving parts					P
	Test voltage (V) ..... :					—
	Ambient, t1 (°C) ..... :					—
	Ambient, t2 (°C) ..... :					—
Temperature of winding:		**R1 (Ω)**	**R2 (Ω)**	**Δ T (K)**	**T (°C)**	**Max. T (°C)**
Fan motor		—	—	—	33	155
Compressor BD35K		1.58	1.59	<50°C	140	105
Supplementary information: Evaporator fan (JF0825B1HR) was tested at 12 Vdc. The compressor BD35K tried to start all the time during locked rotor but could not.						

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

19.13	TABLE: Abnormal operation, temperature rises	P
Thermocouple locations:	**Max. temperature rise measured, Δ T (K)**	**Max. temperature rise limit, Δ T (K)**
Wooden support	4	150
Reinforced insulation	<<clause 11	150
Supplementary information: 1) Test acc. to Annex AA. The temperature on the plastic surface above the windings was 33°C (<90°C) when steady condition was established.		

21.1	TABLE: Impact resistance		P
Impacts per surface	**Surface tested**	**Impact energy (Nm)**	**Comments**
3	panel	0.5	P
Supplementary information:			

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict

24.1	TABLE: Components information				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity [1])
Motor compressor and its combined controller	Secop	ECU-101N0420 Electronic Control Unit for compressor BD35K	12/24V DC, 10-45V DC Solar, R600a	IEC/EN 60335-1 IEC/EN 60335-2-89 Annex AA	Tested in appliance
Thermostat	EMERSON	XR20CH	230VAC+-10%, 50/60Hz16 3VA max	IEC/EN 60335-2-89	Tested in appliance
Alt. Thermostat	Ranco	K54	250V, 6(6)A 100E	IEC/EN 60730-2-9	ENEC
Thermometer solar	Jorgensen APPLIANCE	8724009128-7020392-03	IP65, -30℃ C-50℃	IEC/EN 60335-2-89	Tested in appliance
Fan motor	SUNON	KD1208PTB3	12VDC, 0.08A 1W	IEC/EN 60335-1 IEC/EN 60335-2-89 Annex AA	Tested in appliance
Alt. Fan motor	Jamicon	JT0825B1HR002-065R	12VDC, 0.19A	IEC/EN 60335-1 IEC/EN 60335-2-89 Annex AA	Tested in appliance
Switch	Arcolectric	1350 SERIES	250VAC, 16(6)A,T85	IEC/EN 61058-1	ENEC
Terminal	weco	15.885.202	5 poles, 450VAC, 17.5A, 1.5mm2	IEC/EN 60998-1	VDE
Fuse	Littelfuse	0257015	32VDC, 15A	IEC/EN 60335-1	Tested in appliance
Fuse holder	Eska	3700000	20A, 32V	IEC/EN 60335-1	Tested in appliance
Connector (female and male)	Mc4	PV-ADSP4w/z /PV-ADBP4w/z	V-0	IEC/EN 60335-1	Tested in appliance
Supplementary information: [1]) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict

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

29	TABLE: Clearance and Creepage Distance Measurements					P
clearance cl and creepage distance dcr at/of:	**Up (V)**	**U r.m.s. (V)**	**Required cl (mm)**	**cl (mm)**	**required dcr (mm)**	**dcr (mm)**
Basic insulation	500	45	0.8	x	1.2	x
Reinforced insulation	800	15	0.8	x	2.4	x
Supplementary information: Pollution degree 3						

29.2	TABLE: Distance Through Insulation Measurements				N/A
Distance through insulation di at/of:	**U r.m.s. (V)**	**Test voltage (V)**	**Required di (mm)**	**di (mm)**	
Supplementary information:					

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict

30.1	TABLE: Ball Pressure Test of Thermoplastics		P
Allowed impression diameter (mm) ..... :			—
Object/ Part No./ Material	**Manufacturer/ trademark**	**Test temperature (°C)**	**Impression diameter (mm)**
Main input terminal	-	125	-
Other terminals	-	125	-
Relay , socket	-	125	-
Relay, enclosure	-	125	-
Main input terminal	-	125	-
Connector of main conductors	-	125	-
Main switch	-	125	-
Connector of compressor	-	125	-
Main connector (+)	-	125	-
Main connector (-)	-	125	-
Fuse holder	-	125	-
Enclosure of electronic control	-	75	-
Enclosure of thermostat	-	75	-
Supplementary information: Theses measured values are derived from test report form 1613468STO-001. Manufacturer and impression diameter are not given.			

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict

30.2	TABLE: Resistance to heat and fire - Glow wire tests							
Object/ Part No./ Material	**Manufacturer / trademark**	**Glow wire test (GWT); (°C)**						**Verdict**
		550	**650**		**750**		**850**	
			te	**ti**	**te**	**ti**		
Main input terminal	-				5s	2s	x	P
Other terminals	-				-	-	x	P
Relay , socket	-				-	-	x	P
Relay, enclosure	-				-	-	x	P
Main input terminal	-				-	-	x	P
Connector of main conductors	-				2s	2s	x	P
Main switch	-				>8	2s	x	P
Connector of compressor	-				>8	2s	x	P
Main connector (+)	-				-	-	x	P
Main connector (-)	-				-	-	x	P
Fuse holder	-				-	-	x	P

Object/ Part No./ Material	**Manufacturer / trademark**	**Glow-wire flammability index (GWFI), °C**				**GW ignition temp. (GWIT), °C**		**Verdict**
		550	**650**	**750**	**850**	**675**	**775**	

The test specimen passed the glow wire test (GWT) with no ignition [(te – ti) ≤ 2s] (Yes/No) .. :	Yes
If no, then surrounding parts passed the needle-flame test of annex E (Yes/No)..... :	No
The test specimen passed the test by virtue of most of the flaming material being withdrawn with the glow-wire (Yes/No)?..... :	No
Ignition of the specified layer placed underneath the test specimen (Yes/No)..... :	No

IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

- 550 °C GWT not relevant (or applicable) to parts of material classified at least HB40 or if relevant HBF
- The GWIT pre-selection option, the 850 °C GWFI pre-selection option, and the 850 °C GWT are not relevant (or applicable) for attended appliances

30.2/30.4	TABLE: Needle- flame test (NFT)				P
Object/ Part No./ Material	**Manufacturer/ trademark**	**Duration of application of test flame (ta); (s)**	**Ignition of specified layer Yes/No**	**Duration of burning (tb) (s)**	**Verdict**
Enclosure of electronic control	-	-	-	-	P
Enclosure of thermostat	-	-	-	-	P

Supplementary information:

- NFT not relevant (or applicable) for Parts of material classified as V-0 or V-1
- NFT not relevant (or applicable) for Base material of PCBs classified as V-0 or if relevant VTM-0

ATTACHMENT IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60335-1:2010+A1:2013
Household and similar electrical appliances – Safety –
Part 1: GENERAL REQUIREMENTS

Differences according to :	IEC 60335-1/A2:2016
Attachment Form No. :	IEC60335_1_Am2 Intertek
Attachment Originator :	Intertek Semko
Master Attachment :	Date 2017-02

IEC 60335-1:2010 Am2			
6.1	For a class III construction with a detachable power supply part the appliance is classified according to the detachable power supply part		N/A
7.1	Symbol IEC 60417-5180, for class III appliances, unless		N/A
	the appliance is operated by batteries only, or		N/A
7.12.9	Instructions specified in 7.12 and from 7.12.1 to 7.12.8 appear together before any other instructions supplied with the appliance		P
	These instructions may be supplied with the appliance separately from any functional use booklet		N/A
	They may follow the description of the appliance that identifies parts, or follow the drawings/sketches		N/A
	In addition, instructions are also available in an alternative format such as on a website or on request from the user in a format such as a DVD		P
	In addition, instructions are also available in an alternative format such as on a website or in a format such as a DVD :		P
7.14	Signal words WARNING, CAUTION, DANGER in uppercase having a height as specified..... .....:		P
	Uppercase letter of the text explaining the signal word not smaller than 1,6 mm ....:		P
	Moulded in, engraved, or stamped markings either raised above or have a depth below the surface of at least 0,25 mm, unless		N/A
	contrasting colours are used		P
	Markings checked by inspection, measurement and rubbing test as specified		P
8.1.3	For a single switching action obtained by a switching device, requirements as specified		P

ATTACHMENT IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	For appliances with a supply cord and without a switching device, the single switching action may be obtained by the withdrawal of the plug		N/A
13.2	The leakage current is measured by means of the circuit described in Figure 4 of IEC 60990:1999		N/A
19.7	the capacitor is of class S2 or S3 of IEC 60252-1		N/A
22.12	A choking hazard does not apply to appliances for commercial use		N/A
	If the part is removed and can be contained within the small parts cylinder, it is considered to be a choking hazard		N/A
22.55	Devices operated to stop the intended function of the appliance, if any, are be distinguished from other manual devices by means of shape, size, surface texture or position .....:		N/A
	The requirement concerning position does not preclude use of a push on push off switch		N/A
	An indication when the device has been operated is given by:		-
	– tactile feedback from the actuator or from the appliance, or		N/A
	– reduction in heat output; or		N/A
	– audible and visible feedback		P
22.56	Detachable power supply part provided with the part of class III construction		N/A
22.57	The properties of non-metallic materials do not degrade from exposure to UV-C radiation, as specified in Annex T		N/A
	This requirement does not apply to glass, ceramics or similar materials		N/A
24.2	Appliances not fitted with:		-
	- switches, automatic controls or power supplies in flexible cords		P
24.8	- the capacitors are of class S2 or S3 according to IEC 60252-1		N/A
25.7	Supply cords, other than for class III appliances, being one of the following types:		
	- halogen-free, low smoke, thermoplastic insulated and sheathed		
	• light duty halogen-free low smoke flexible cable (62821 IEC 101) for circular cable and (62821 IEC 101f) for flat cable		N/A

ATTACHMENT IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	• Ordinary duty halogen-free low smoke flexible cable (62821 IEC 102) for circular cable and (62821 IEC 102f) for flat cable		N/A
25.10	Where additional neutral conductors are provided in the supply cord:		
	– other colours may be used for these additional neutral conductors;		N/A
	– all of the neutral conductors and line conductors are identified by marking using the alpha numeric notation specified in IEC 60445		N/A
	– the supply cord is fitted to the appliance		N/A
25.23	- for class I or class II appliance with class III construction, the cross-sectional areas of the conductors need not comply with 25.8 if specified conditions are met		N/A
B	**ANNEX B (NORMATIVE)** **APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE RECHARGED IN THE APPLIANCE**		
7.12	Instructions for appliances containing non user-replaceable batteries state the substance of the following:		-
	This appliance contains batteries that are only replaceable by skilled persons		N/A
	Instructions for appliances containing non-replaceable batteries shall state the substance of the following:		-
	This appliance contains batteries that are non-replaceable		N/A
P	**ANNEX P (INFORMATIVE)** **GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN TROPICAL CLIMATES**		
	Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150V, intended to be used in countries having a tropical climate and that are marked with symbol IEC 60417-6332		N/A
	Modifications may also be applied to class 1 appliances having a rated voltage exceeding 150V, intended to be used in countries having a tropical climate and that are marked with symbol IEC 60417-6332, if liable to be connected to a supply mains that excludes the protective earthing conductor		N/A
7.1	The appliance marked with symbol IEC 60417-6332		N/A
7.12	If symbol IEC 60417-6332 is used, its meaning is explained		N/A
T	**ANNEX T (NORMATIVE)** **UV-C RADIATION EFFECT ON NON-METALLIC MATERIALS**		
	Requirements for non-metallic materials subject to direct or reflected UV-C radiation exposure and whose mechanical and electrical properties are relied upon for compliance with the		N/A

ATTACHMENT IEC 60335-2-89			
Clause	Requirement + Test	Result - Remark	Verdict
	Does not apply to glass, ceramic and similar materials		N/A
	Tested as specified in ISO 4892-1 and ISO 4892-2, with the following modifications:		-
	Modifications to ISO 4892-1:		-
5.1.6	The UV-C emitter is a low-pressure mercury lamp with a quartz envelope having a continuous spectral irradiance of 10 W/m2 at 254 nm		N/A
	Subclause 5.1.6.1 and Table 1 are not applicable		N/A
5.2.4	The black-panel temperature shall be 63 °C +/- 3 °C		N/A
5.3.1	Humidification of the chamber air is specified in part 2 when necessary		N/A
9	This clause is not applicable		N/A
	Modifications to ISO 4892-2:		
7.1	At least three test specimens are tested		N/A
	Ten samples of internal wiring are tested		N/A
7.2	The specimens are attached to the specimen holders such that they are not subject to any stress		N/A
7.3	Apparatus prepared as specified		N/A
	The test specimens and, if used, the irradiance-measuring instrument are exposed for 1 000 h		N/A
7.4	If used, a radiometer is mounted and calibrated such that it measures the irradiance at the exposed surface of the test specimen		N/A
7.5	Material properties and test methods for parts providing mechanical support or impact resistance as specified in Table T.1		N/A
	Material properties and test method for electrical insulation of internal wiring as specified in Table T.2		N/A
8	This clause is not applicable		N/A

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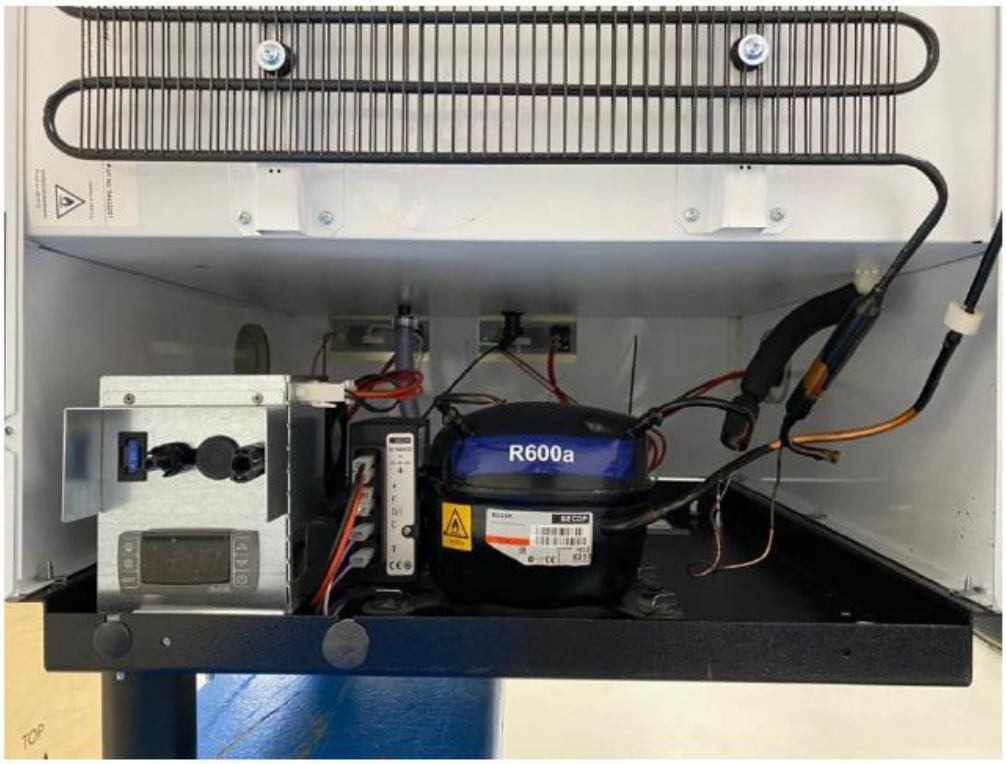

MAXIMUM OVERALL UNCERTAINTY

Statement concerning the measurement uncertainty and decision rules

Electrical quantities			
			Max overall uncertainty k=2
Voltage	≤ 1000V	DC	± 1,2%
	≤ 1000VRMS	45Hz - 5kHz	± 2,8%
Current	≤ 10A	DC	± 1,3%
	≤ 10A	45Hz - < 5kHz	± 1,6%
Resistance	< 100mΩ		± 1%
	100mΩ - 2MΩ		± 0,1%
	> 2MΩ		± 0,2%
Electric power	≤ 3kW	45 Hz ≤f ≤66 Hz	± 0,3%
	≥ 3kW	45 Hz ≤f ≤66 Hz	± 0,4%
Electric power (precision power meter)	≤ 3kW	45 Hz ≤f ≤66 Hz	± 0,15%
Oscilloscopes	peak value		± 0,4%
Earth continuity meters	10A – 25A		± 0,6%
Leakage current	≤ 30mA	50 - 5000Hz	± 2,8%
Non Electrical quantities			
			Max overall uncertainty k=2
Temperature	≤ 300°C		± 3°C
Calculation of temp raise	> 300°C		± 4,5°C
Linear dimensions			
Caliper	2 - 150mm		± 0,14mm
Micrometer	0 - 25mm		± 0,07mm
Gauge rods	≤2mm		± 0,02mm
Mass	< 10g		± 0,5%
	10g - 100g		± 1%
	> 100g		± 2%
Relative humidity	10-95%RH		± 3%
Timers	1s - 1min		± 1s
	> 1min		± 1s
Corrosion testing, saltmist downfall	ml/h		±0,15ml/h
Salt concentration	5g		± 0,1%
Ph value	6,5-7,2pH		± 0,002pH
Flow	l/min		± 5%
Pressure	Pa		± 5%
Acceleration	m/s^2		± 10%

Decision rule applied

"Simple Acceptance" rule, also called "Shared Risk Approach" of ILAC-G8:09/2019 guide

The statements of conformity are reported as:

Passed – When the measured values are within the specified limits

Failed – When one or more measures values are outside the specified limits

Other decision rule: