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| <b>TEST REPORT</b><br><b>IEC 60335-2-24</b><br><b>Safety of household and similar electrical appliances</b><br><b>Part 2: Particular requirements for refrigerating appliances,</b><br><b>ice-cream appliances and ice-makers</b>  |  |
| <b>Report Number</b> .....   | EFSH24120183-IE-12-L01   |
| <b>Date of issue</b> .....   | 2025-07-25   |
| <b>Total number of pages</b> .....   | 114 pages  |
| <b>Name of Testing Laboratory preparing the Report</b> .....   | Eurofins Electrical Testing Service (Shanghai) Co., Ltd.   |
| <b>Applicant's name</b> .....  | Ningbo Zhishuai Electrical Technology Co., Ltd.  |
| <b>Address</b> .....   | NO.158, SANDY BEACH ROAD, XINPU TOWN, CIXI CITY, ZHEJIANG, CHINA   |
| <b>Test specification:</b>   |  |
| <b>Standard</b> .....  | IEC 60335-2-24:2020 in conjunction with IEC 60335-1:2010, IEC 60335-1:2010/AMD1:2013, IEC 60335-1:2010/AMD2:2016 |
| <b>Test procedure</b> .....  | CB Scheme  |
| <b>Non-standard test method</b> .....  | N/A  |
| <b>TRF template used</b> .....   | IECEE OD-2020-F1:2023, Ed.1.6  |
| <b>Test Report Form No.</b> .....  | IEC60335_2_24U   |
| <b>Test Report Form(s) Originator</b> .....  | VDE Prüf- und Zertifizierungsinstitut GmbH   |
| <b>Master TRF</b> .....  | Dated 2024-11-01   |
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| <b>General disclaimer:</b><br>The test results presented in this report relate only to the object tested.<br>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.  |  |

|   |   |   |
|---|---|---|
| <b>Test item description</b> .....  | Ice Maker   |   |
| <b>Trade Mark(s)</b> .....  | NA  |   |
| <b>Manufacturer</b> .....   | Ningbo Zhishuai Electrical Technology Co., Ltd.<br>NO.158, SANDY BEACH ROAD, XINPU TOWN, CIXI CITY,<br>ZHEJIANG, CHINA  |   |
| <b>Model/Type reference</b> .....   | ZSW-ZB13, ZSW-ZB14, ZSW-ZB15, ZSW-ZB16, ZSW-ZB17  |   |
| <b>Ratings</b> .....  | AC 220-240V, 50Hz, Class I<br>ZSW-ZB13, ZSW-ZB14: 0,7A, R600a/23g,<br>ZSW-ZB15, ZSW-ZB16, ZSW-ZB17: 0,84A, R290/20g<br>Climate: N, SN, ST, Insulation Blowing Gas: Cyclopentane |   |
| <b>Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):</b> |   |   |
| <input checked="" type="checkbox"/>   | <b>CB Testing Laboratory:</b>   | Eurofins Electrical Testing Service (Shanghai) Co., Ltd.  |
|   | <b>Testing location/ address</b> .....  | Building 18, No,2168 Chenhang Highway, Minhang District, Shanghai, P,R China  |
|   | <b>Tested by (name, function, signature) .....</b>  | Mark Zhang/<br>Project Engineer  |
|   | <b>Approved by (name, function, signature) ..</b>   | Owen Li/<br>Reviewer            |
| <input type="checkbox"/>  | <b>Testing procedure: CTF Stage 1:</b>  | N/A   |
|   | <b>Testing location/ address</b> .....  | N/A   |
|   | <b>Tested by (name, function, signature) .....</b>  | N/A   |
|   | <b>Approved by (name, function, signature) ..</b>   | N/A   |
| <input type="checkbox"/>  | <b>Testing procedure: CTF Stage 2:</b>  | N/A   |
|   | <b>Testing location/ address</b> .....  | N/A   |
|   | <b>Tested by (name + signature).....</b>  | N/A   |
|   | <b>Witnessed by (name, function, signature) .</b>   | N/A   |
|   | <b>Approved by (name, function, signature) ..</b>   | N/A   |
| <input type="checkbox"/>  | <b>Testing procedure: CTF Stage 3:</b>  | N/A   |
| <input type="checkbox"/>  | <b>Testing procedure: CTF Stage 4:</b>  | N/A   |
|   | <b>Testing location/ address</b> .....  | N/A   |
|   | <b>Tested by (name, function, signature) .....</b>  | N/A   |
|   | <b>Witnessed by (name, function, signature) .</b>   | N/A   |
|   | <b>Approved by (name, function, signature) ..</b>   | N/A   |
|   | <b>Supervised by (name, function, signature) :</b>  | N/A   |

|   |   |
|---|---|
| <b>List of Attachments (including a total number of pages in each attachment):</b>  |   |
| Photos document: 48 pages (Separate file)   |   |
| <b>Summary of testing:</b>  |   |
| <b>Tests performed (name of test, test clause and date test performed):</b><br>Full tests were performed on ZSW-ZB14, ZSW-ZB15,<br>Clause 6-8, 19.11, 20-29 for ZSW-ZB13, ZSW-ZB16,<br>Clause 6-8, 20-29 for ZSW-ZB17   | <b>Testing location: (CBTL, SPTL, CTF, Subcontractor)</b><br>Eurofins Electrical Testing Service (Shanghai) Co., Ltd.<br>Building 18, No,2168 Chenhang Highway, Minhang District, Shanghai, P,R China<br>Subcontractor's laboratory:<br>Eurofins Electrical Testing Service (Shenzhen) Co., Ltd.<br>Room 20 of 2/F., 1/F., Building 2, Spring Block & Room 102, Building 8, Autumn Block, Meishenghuigu Innovation Park, No.83, Dabao Road, Bao'an District, Shenzhen, Guangdong, China<br>Subcontract items: cl19.11.4 |
| <b>Summary of compliance with National Differences</b>  |   |
| None  |   |
| <b>Use of uncertainty of measurement for decisions on conformity (decision rule) :</b>  |   |
| <input checked="" type="checkbox"/> No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").   |   |
| <input type="checkbox"/> Other: ... (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)   |   |
| <b>Information on uncertainty of measurement:</b>   |   |
| <p>The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.</p> <p>IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.</p> <p>Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.</p> |   |

**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.

**Ice maker****ZSW-ZB13**

AC 220-240V, 50Hz, 0,7A, R600a/23g,

Climate: N, SN, ST,




NINGBO ZHISHUAI ELECTRICAL TECHNOLOGY CO., LTD.

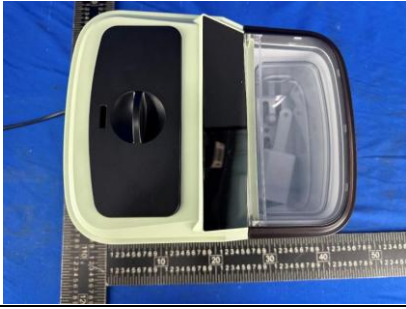

NO.158, SANDY BEACH ROAD, XINPU TOWN, CIXI CITY, ZHEJIANG, CHINA



WARNING: Risk of fire / flammable materials

: Paste it on the back of the outer shell of the appliance.





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|---|--|---|
| <b>Test item particulars</b> ..... : Ice Make   |  |   |
| <b>Classification of installation and use</b> ..... : Class I, household indoor use only  |  |   |
| <b>Supply Connection</b> ..... : Type Y<br>..... :  |  |   |
| <b>Possible test case verdicts:</b><br>- test case does not apply to the test object ..... : N/A<br>- test object does meet the requirement ..... : P (Pass)<br>- test object does not meet the requirement ..... : F (Fail)  |  |   |
| <b>Testing</b> ..... :  |  |   |
| <b>Date of receipt of test item</b> ..... : 2025-06-03  |  |   |
| <b>Date (s) of performance of tests</b> ..... : 2025-06-03 to 2025-07-25  |  |   |
| <b>General remarks:</b>   |  |   |
| "(See Enclosure #)" refers to additional information appended to the report.<br>"(See appended table)" refers to a table appended to the report.  |  |   |
| Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.   |  |   |
| <input type="checkbox"/> This Test Report Form contains requirements according to IEC/ISO Standard dated and includes Corrigendum dated   |  |   |
| The related applicable CTL decisions have been considered and the requirements found fulfilled.   |  |   |
| <b>Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:</b>   |  |   |
| The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....: | <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> Not applicable   |   |
| <b>When differences exist; they shall be identified in the General product information section.</b>   |  |   |
| <b>Name and address of factory (ies)</b> ..... : Ningbo Zhishuai Electrical Technology Co., Ltd.<br>NO.158, SANDY BEACH ROAD, XINPU TOWN,<br>CIXI CITY, ZHEJIANG, CHINA   |  |   |
| <b>General product information and other remarks:</b>   |  |   |
| The appliances covered by this report are Ice make only for household and indoor use only.  |  |   |
| ZSW-ZB13  | ZSW-ZB14   | ZSW-ZB15  |
|    |  |  |

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|--|--|--|
| <p>ZSW-ZB16</p>  A photograph of a white, rectangular electronic device with a black circular dial on the front. The device is placed on a blue surface next to a metal ruler for scale. The ruler shows markings in centimeters and millimeters. | <p>ZSW-ZB17</p>  A photograph of a white, rectangular electronic device with a black circular dial on the front. The device is placed on a light-colored surface. A black power cord is visible on the right side. |  |
| <p>After checked, clauses need to be performed refer to the “summary of testing”, the most unfavorable data were recorded.<br/>After testing, the samples are considered to comply with the requirements of relevant standards.</p>  |  |  |

| IEC 60335-2-24 |  |  |         |
|----------------|--|--|---------|
| Clause         | Requirement + Test   | Result - Remark                        | Verdict |
| <b>5</b>       | <b>GENERAL CONDITIONS FOR THE TESTS</b>  |  |         |
|                | Tests performed according to clause 5, e.g. nature of supply, sequence of testing, etc.  |  | P       |
| 5.2            | At least one additional specially prepared sample is required for the tests of 22.107.   |  | N/A     |
|                | Unless the motor-compressor conforms to IEC 60335-2-34, at least one additional specially prepared sample is required for the test of 19.1.  |  | N/A     |
|                | At least one additional sample of the fan motor, thermal motor protector combination may be required for the test of 19.1.   |  | P       |
|                | The test of 22.7 may be performed on separate samples.   |  | N/A     |
|                | Due to the potentially hazardous nature of the tests of 22.107, 22.108 and 22.109, special precautions may need to be taken when performing the tests.   |  | P       |
| 5.3            | Before starting the tests (IEC 60335-2-24):  |  | —       |
|                | - ice cream appliances are operated empty at rated voltage as specified  |  | N/A     |
|                | - other compression-type appliances shall be operated at rated voltage for 24 h then switched off for 12 h   |  | P       |
|                | Order of tests as specified (IEC 60335-2-24)   |  | P       |
| 5.7            | Tests according to Clauses 10, 11, 13 and subcl. 19.103 at ambient temperature of: (IEC 60335-2-24)  |  | —       |
|                | (23 + 2) °C for ice-cream appliances   |  |         |
|                | (32 + 1) °C Climatic class   | SN <input checked="" type="checkbox"/> | P       |
|                | (32 + 1) °C Climatic class   | N <input checked="" type="checkbox"/>  | P       |
|                | (38 + 1) °C Climatic class   | ST <input checked="" type="checkbox"/> | P       |
|                | (43 + 1) °C Climatic class   | T <input type="checkbox"/>             | N/A     |
|                | Steady conditions are considered to be established when three successive readings of the temperature, taken at approximately 60 min intervals, at the same point of any operating cycle, do not differ by more than 1 K. |  | P       |
| 5.102          | Compression-type appliances with heating systems and Peltier-type appliances are tested as combined appliances (IEC 60335-2-24)  |  | N/A     |

| IEC 60335-2-24 |  |                  |         |
|----------------|--|------------------|---------|
| Clause         | Requirement + Test   | Result - Remark  | Verdict |
| <b>6</b>       | <b>CLASSIFICATION</b>  |                  |         |
| 6.1            | Protection against electric shock:<br>Class 0, 0I, I, II, III .....  | Class I          | P       |
|                | For a class III construction with a detachable power supply part the appliance is classified according to the detachable power supply part   |                  | N/A     |
| 6.2            | Protection against harmful ingress of water  |                  | P       |
| 6.101          | Appliances, other than ice-cream appliances, shall be of one or more of the following climatic classes: SN, N, ST, T (IEC 60335-2-24)  | SN/N/ST          | P       |
| <b>7</b>       | <b>MARKING AND INSTRUCTIONS</b>  |                  |         |
| 7.1            | Rated voltage or voltage range (V) .....   | Refer to marking | P       |
|                | Symbol for nature of supply, or .....  | Refer to marking | P       |
|                | Rated frequency (Hz) .....   | Refer to marking | P       |
|                | Rated power input (W), or .....  | Refer to marking | P       |
|                | Rated current (A) .....  | Refer to marking | P       |
|                | Manufacturer's or responsible vendor's name, trademark or identification mark.....   | Refer to marking | P       |
|                | Model or type reference .....  | Refer to marking | 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, or  |                  | N/A     |
|                | for appliances powered by rechargeable batteries recharged in the appliance  |                  | N/A     |
|                | Symbol IEC 60417-5018, for class II and class III appliances incorporating a functional earth  |                  | N/A     |
|                | Symbol IEC 60417-5036, for the enclosure of electrically-operated water valves in external hose-sets for connection of an appliance to the water mains, if the working voltage exceeds extra-low voltage |                  | N/A     |
|                | Power input of heating systems, if greater than 100 W, (W) (IEC 60335-2-24)  |                  | N/A     |
|                | Defrosting input, in W, if greater than the rated power input, (W) (IEC 60335-2-24)  |                  | N/A     |
|                | Rated power input in Watts (IEC 60335-2-24)  |                  | N/A     |
|                | Rated current in Amperes for compression-type appliances (IEC 60335-2-24)  |                  | P       |

| IEC 60335-2-24 |  |                 |         |
|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
|                | Climatic class of the appliance (SN, N, ST or T) (IEC 60335-2-24)  | ST              | P       |
|                | Maximum rated input of lamps in Watts (IEC 60335-2-24)   |                 | N/A     |
|                | Not applicable if the lamps can only be replaced by the manufacturer or service (IEC 60335-2-24)   |                 | P       |
|                | Total mass of the refrigerant (IEC 60335-2-24)   |                 | P       |
|                | For a single component refrigerant, at least one of the following (IEC 60335-2-24):  |                 | —       |
|                | - the chemical name  |                 | N/A     |
|                | - the chemical formula   |                 | N/A     |
|                | - the refrigerant number   |                 | P       |
|                | For a blended refrigerant, at least one of the following (IEC 60335-2-24):   |                 | —       |
|                | - the chemical name and nominal proportion of each of the components   |                 | N/A     |
|                | - the chemical formula and nominal proportion for each of the components   |                 | N/A     |
|                | - the refrigerant numbers and nominal proportion of each of the components   |                 | N/A     |
|                | - the refrigerant number of the refrigerant blend  |                 | N/A     |
|                | The chemical name or refrigerant number of the insulation blowing gas (IEC 60335-2-24)   |                 | N/A     |
|                | Battery voltage for appliances which can be mains and battery operated (IEC 60335-2-24)  |                 | N/A     |
|                | Max. power input for incorporated ice-maker, if greater than 100 W (IEC 60335-2-24)  |                 | N/A     |
|                | Ice-makers shall be marked with the maximum permissible water level (IEC 60335-2-24)   |                 | P       |
|                | Compression-type refrigerating systems appliance shall be marked with mass of the refrigerant for each separate refrigerant circuit (IEC 60335-2-24) |                 | P       |
|                | Compression-type appliances flammable which use refrigerants shall be marked the symbol ISO 7010 W021 (2019-07) (IEC 60335-2-24)                     |                 | P       |
|                | Appliances employing R-744 in a transcritical refrigeration system shall be marked with the substance of the following: (IEC 60335-2-24)             |                 | —       |
|                | Warning: System contains refrigerant under high pressure. Do not tamper with the system. It must be serviced by qualified persons only.              |                 | N/A     |

| IEC 60335-2-24 |  |                 |         |
|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
|                | Appliances employing R-744 in a transcritical refrigeration system shall be marked with symbol ISO 7000 – 1701 (2004-01).<br>(IEC 60335-2-24)                                      |                 | 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   |                 | 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         |                 | N/A     |
| 7.5            | Appliances with more than one rated voltage or one or more rated voltage ranges, marked with rated input or rated current for each rated voltage or range, unless                  |                 | N/A     |
|                | the power input or current are related to the arithmetic mean value of the rated voltage range   |                 | P       |
|                | 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 IEC 60417-5005 (2002-10)<br>Plus; positive polarity (IEC 60335-2-24)                    |                 | N/A     |
|                |  Symbol IEC 60417-5006 (2002-10)<br>Minus; negative polarity (IEC 60335-2-24)                   |                 | N/A     |
|                |  Symbol ISO 7010 W021 (2019-07)<br>Warning: risk of fire / flammable materials (IEC 60335-2-24) |                 | P       |
|                |  Symbol ISO 7000–1701 (2004-01)<br>Pressure (IEC 60335-2-24)                                    |                 | N/A     |

| IEC 60335-2-24 |  |                 |         |
|----------------|--|-----------------|---------|
| 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)   |                 | P       |
|                | - marking of functional earthing terminals (symbol IEC 60417-5018)   |                 | N/A     |
|                | - marking not placed on removable parts  |                 | P       |
| 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  |                 | N/A     |
|                | The figure 0 indicates only OFF position, unless no confusion with the OFF position  |                 | N/A     |
|                | <del>See Note (IEC 60335-2-24)</del>   |                 | N/A     |
| 7.11           | Indication for direction of adjustment of controls   |                 | N/A     |
| 7.12           | Instructions for safe use provided   |                 | P       |
|                | Details concerning precautions during user maintenance   |                 | P       |
|                | The instructions state that:   |                 | —       |
|                | - 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 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| 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 .....   |                 | N/A     |
|                | The instructions for appliances incorporating a functional earth states that the appliance incorporates an earth connection for functional purposes only                            |                 | N/A     |
|                | Instructions for refrigerating appliances and ice makers for camping or similar use include the substance of the following (IEC 60335-2-24):  |                 | —       |
|                | -suitable for camping use   |                 | N/A     |
|                | -the appliances connected to more than one source of energy (not applicable to appliances which are intended to be supplied by electricity only);                                   |                 | N/A     |
|                | -the appliances shall not be exposed to rain unless at least IPX4   |                 | N/A     |
|                | - for ice-makers not intended to be connected to the water supply<br>WARNING: fill with potable water only  |                 | P       |
|                | For compression-type appliances which use flammable refrigerants, instructions shall include information pertaining to the installation, handling, servicing (IEC 60335-2-24)       |                 | P       |
|                | For compression-type appliances that use flammable refrigerants shall additionally include the substance of the warnings listed below: (IEC 60335-2-24)                             |                 | P       |
|                | - WARNING – Keep ventilation openings, in the appliance enclosure or in the built-in structure, clear of obstruction (IEC 60335-2-24)   |                 | P       |
|                | - WARNING – Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer (IEC 60335-2-24)                    |                 | P       |
|                | - WARNING – Do not damage the refrigerant circuit.<br>This warning is only applicable for appliances with refrigerating circuits which are accessible by the user. (IEC 60335-2-24) |                 | P       |
|                | - WARNING – Do not use electrical appliances inside the food storage compartments of the appliance, unless they are of the type recommended by the manufacturer (IEC 60335-2-24)    |                 | P       |

| IEC 60335-2-24 |  |                 |         |
|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
|                | Appliances which use flammable insulation blowing gases, instructions shall include information regarding disposal of the appliance (IEC 60335-2-24) |                 | P       |
|                | Instructions for ice-cream appliances shall include ingredients and max. quantity of mixtures that can be used in the appliance (IEC 60335-2-24)     |                 | N/A     |
|                | The instructions shall state the substance of the following (IEC 60335-2-24)   |                 | —       |
|                | Do not store explosive substances such as aerosol cans with a flammable propellant in this appliance.  |                 | P       |
|                | If symbol ISO 7000–1701 (2004-01) is used, its meaning shall be explained.   |                 | N/A     |
|                | The instructions shall include the substance of the following (IEC 60335-2-24)   |                 | —       |
|                | This appliance is intended to be used in household and similar applications (list)   |                 | P       |
|                | If the manufacturer wants to limit the use of the appliance to less than the above, this has to be clearly stated in the instructions.               |                 | P       |
|                | If symbol ISO 7010–W021 (2019-07) is used, its meaning shall be explained (IEC 60335-2-24)   |                 | P       |
|                | The instructions for refrigerating appliances and ice-makers shall include the substance of the following (IEC 60335-2-24):                          |                 | —       |
|                | WARNING: When positioning the appliance, ensure the supply cord is not trapped or damaged.   |                 | P       |
|                | WARNING: Do not locate multiple portable socket-outlets or portable power supplies at the rear of the appliance                                      |                 | P       |
| 7.12.1         | Sufficient details for installation supplied   |                 | P       |
|                | For an appliance intended to be permanently connected to the water mains and not connected by a hose-set, this is stated                             |                 | N/A     |
|                | If different rated voltages or different rated frequencies are marked, the instructions state what action to be taken to adjust the appliance        |                 | N/A     |
|                | The method for replacing illuminating lamps included), if they can be replaced by the user (IEC 60335-2-24)  |                 | N/A     |
|                | Appliances designed for incorporating ice-makers, the types of ice-makers (IEC 60335-2-24)   |                 | N/A     |
|                | Information on the installation of incorporated ice-makers as optional accessories (IEC 60335-2-24)  |                 | N/A     |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
|                | Incorporated ice-makers installed only by the manufacturer or its service agent (IEC 60335-2-24)  |                 | N/A     |
|                | Ice makers intended to be connected to the water supply (IEC 60335-2-24):   |                 | —       |
|                | WARNING: connect to potable water supply only (IEC 60335-2-24)  |                 | N/A     |
|                | Instructions for fixed appliances shall include the following warning (IEC 60335-2-24):   |                 | —       |
|                | WARNING: To avoid a hazard due to instability of the appliance, it must be fixed in accordance with the instructions (IEC 60335-2-24)   |                 | N/A     |
|                | In appliances employing R-744 in a transcritical refrigeration system the instructions shall include the substance of the following (IEC 60335-2-24) :  |                 | —       |
|                | WARNING: The refrigeration system is under high pressure. Do not tamper with it. Contact qualified service personal before disposal.  |                 | N/A     |
| 7.12.2         | Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules |                 | N/A     |
| 7.12.3         | Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions state that the fixed wiring must be protected  |                 | N/A     |
| 7.12.4         | Instructions for built-in appliances:   |                 | N/A     |
|                | - dimensions of space   |                 | N/A     |
|                | - dimensions and position of supporting and fixing  |                 | N/A     |
|                | - minimum distances between parts and surrounding structure   |                 | N/A     |
|                | - minimum dimensions of ventilating openings and arrangement  |                 | N/A     |
|                | - connection to supply mains and interconnection of separate components   |                 | N/A     |
|                | - allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless   |                 | N/A     |
|                | a switch complying with 24.3  |                 | N/A     |
|                | Also applicable to fixed appliances (IEC 60335-2-24)  |                 | N/A     |
| 7.12.5         | Replacement cord instructions, type X attachment with a specially prepared cord   |                 | N/A     |
|                | Replacement cord instructions, type Y attachment  |                 | P       |

| IEC 60335-2-24 |   |  |         |
|----------------|---|--|---------|
| Clause         | Requirement + Test  | Result - Remark                              | Verdict |
|                | 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     |
|                | Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets   |  | 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  |  | P       |
|                | They may follow the description of the appliance that identifies parts, or follow the drawings/sketches   |  | P       |
|                | 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 .....   | Website                                      | P       |
| 7.13           | Instructions and other texts in an official language  | English                                      | P       |
| 7.14           | Markings clearly legible and durable:   |  | —       |
|                | 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   | 15s with water and 15s with petroleum spirit | P       |
|                | The height of the triangle in the symbol ISO 7010–W021 (2019-07) shall be at least 15 mm (IEC 60335-2-24)   |  | P       |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
|                | The height of the letters used for the marking of the type of flammable blowing insulation gas shall be at least 40 mm (IEC 60335-2-24)   |                 | N/A     |
| 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  |                 | N/A     |
|                | For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions   |                 | N/A     |
|                | Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading   |                 | P       |
|                | The symbol IEC 60417-5018 placed next to the symbol IEC 60417-5172 or IEC 60417-5180  |                 | N/A     |
|                | Max. rated input of lamps discernible that can be replaced by the user (IEC 60335-2-24)   |                 | N/A     |
|                | Compression-type appliances the marking of the type of flammable refrigerant and of the flammable insulation blowing gas, as well as the symbol ISO 7010-W021 (2019-07), shall be visible when gaining access to the motor-compressors (IEC 60335-2-24) |                 | P       |
| 7.16           | Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link   |                 | N/A     |
| 7.101          | Appliances which can be battery operated the connection shall be indicated by the symbol "+" or the colour red and "-" or black (IEC 60335-2-24)  |                 | N/A     |
|                | The positive terminal shall be indicated by symbol IEC 60417-5005 (2002-10) and the negative terminal by symbol IEC 60417-5006 (2002-10). (IEC 60335-2-24)  |                 | N/A     |
| <b>8</b>       | <b>PROTECTION AGAINST ACCESS TO LIVE PARTS</b>  |                 |         |
| 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     |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
|                | Insertion or removal of lamps, protection against contact with live parts of the lamp cap   |                 | N/A     |
|                | Use of test probe B of IEC 61032, with a force not exceeding 1 N: no contact with live parts  |                 | P       |
|                | Use of test probe B of IEC 61032 through openings, with a force of 20N: no contact with live parts  |                 | P       |
|                | Removal of lamps: protection against contact with live parts (IEC 60335-2-24)   |                 | 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               |                 | P       |
|                | Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts   |                 | P       |
| 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 or supporting parts |                 | N/A     |
|                | For a single switching action obtained by a switching device, requirements as specified   |                 | N/A     |
|                | For appliances with a supply cord and without a switching device, the single switching action may be obtained by the withdrawal of the plug   |                 | P       |
| 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   |                 | P       |
|                | - or separated from live parts by protective impedance  |                 | P       |
|                | If protective impedance: d.c. current not exceeding 2 mA, and   |                 | N/A     |
|                | a.c. peak value not exceeding 0.7 mA  |                 | P       |
|                | - for peak values over 42.4 V up to and including 450 V, capacitance not exceeding 0.1 $\mu$ F  |                 | N/A     |
|                | - for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 $\mu$ C  |                 | N/A     |
|                | - for peak values over 15 kV, 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     |

| IEC 60335-2-24 |   |                      |         |
|----------------|---|----------------------|---------|
| Clause         | Requirement + Test  | Result - Remark      | Verdict |
|                | - appliances delivered in separate units  |                      | N/A     |
| 8.2            | Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only  |                      | P       |
|                | Only possible to touch parts separated from live parts by double or reinforced insulation   |                      | P       |
| <b>9</b>       | <b>STARTING OF MOTOR-OPERATED APPLIANCES</b>  |                      |         |
|                | Not applicable (IEC 60335-2-24)   |                      | —       |
| <b>10</b>      | <b>POWER INPUT AND CURRENT</b>  |                      |         |
| 10.1           | Power input at normal operating temperature, rated voltage and normal operation not deviating from rated power input by more than shown in table 1 .:   | (see appended table) | P       |
|                | 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 |                      | 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   |                      | P       |
|                | Appliances being operated under normal operation, user adjustable temperature controls are set to give the lowest temperature (IEC 60335-2-24)  |                      | P       |
|                | The power input stabilized, steady conditions established (IEC 60335-2-24)  |                      | P       |
|                | A period between the making and the breaking of the temperature control, or highest and lowest values of power input measured excluding starting power input but including the power input of the incorporated ice-maker, if any (IEC 60335-2-24)   |                      | 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       |

| IEC 60335-2-24 |   |  |         |
|----------------|---|--|---------|
| 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 |  | N/A     |
|                | Otherwise the current is the arithmetic mean value  |  | P       |
|                | Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless   |  | N/A     |
|                | the rated current is related to the arithmetic mean value of the range  |  | P       |
|                | The appliance being operated under normal operation, user adjustable temperature controls are set to give the lowest temperature (IEC 60335-2-24)   |  | P       |
|                | Refrigerating appliances using inverter driven motor-compressors, the appliance shall be operated for a period of 6 h (IEC 60335-2-24)  |  | N/A     |
|                | or the maximum setting of an incorporated timer, whichever is shorter. (IEC 60335-2-24)   |  | N/A     |
|                | Defrost cycles are excluded, if any. (IEC 60335-2-24)   |  | N/A     |
|                | Other appliances are operated for 1 h. The max. value of the current averaged over any 5 min period is obtained. The interval shall not exceed 30 s. Starting after 1 min (IEC 60335-2-24)  |  | P       |
| 10.101         | The power input of the defrosting system, deviation shown in Table 1 (IEC 60335-2-24)   |  | N/A     |
| 10.102         | The power input of any heating system, deviation shown in Table 1 (IEC 60335-2-24)  |  | N/A     |
| <b>11</b>      | <b>HEATING</b>  |  |         |
| 11.1           | No excessive temperatures in normal use   |  | P       |
|                | If the winding temperatures of motor-compressors exceed the values given in Table 101, compliance is checked by the test of 11.101 (IEC 60335-2-24)   |  | N/A     |
|                | The winding temperatures of motor-compressors conforming IEC 60335-2-34 (incl. Annex AA) are not measured (IEC 60335-2-24)  | The motor compressor has been certified. | N/A     |
| 11.2           | Placing and mounting of appliance as described (IEC 60335-2-24)   |  | P       |
| 11.3           | Temperature rises, other than of windings, determined by thermocouples  |  | P       |

| IEC 60335-2-24 |   |                      |         |
|----------------|---|----------------------|---------|
| Clause         | Requirement + Test  | Result - Remark      | Verdict |
|                | 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)..... | 254,4V               | P       |
| 11.6           | Combined appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V).....       |                      | N/A     |
| 11.7           | Operation duration corresponding to the most unfavourable conditions of normal use  |                      | N/A     |
|                | The appliances is operated until steady conditions are established (IEC 60335-2-24)   |                      | P       |
| 11.8           | Temperature rises monitored continuously and not exceeding the values in table 3 .....  | (see appended table) | P       |
|                | If the temperature rise of a motor winding exceeds the value of table 3, or   |                      | N/A     |
|                | if there is doubt with regard to classification of insulation,  |                      | N/A     |
|                | tests of Annex C are carried out  |                      | N/A     |
|                | Sealing compound does not flow out  |                      | 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 protective devices do not operate (IEC 60335-2-24)  |                      | P       |
|                | During the test sealing compound doesn't flow out (IEC 60335-2-24)  |                      | P       |
|                | During the test temperatures are monitored continuously (IEC 60335-2-24)  |                      | P       |
|                | For (SN) and (N) class, the temperature rises not exceeding values in Table 3 (IEC 60335-2-24)  |                      | N/A     |
|                | For (ST) and (T) class, the temperature rises not exceeding values in Table 3 reduced by 7 K (IEC 60335-2-24)                             |                      | P       |
|                | For motor-compressors not conforming to IEC 60335-2-34 (incl. its Annex AA), the temperatures of (IEC 60335-2-24)                         |                      | —       |
|                | - housings of motor-compressors and   |                      | N/A     |
|                | - windings of motor-compressors   |                      | N/A     |
|                | shall not exceed the values given in Table 101  |                      | N/A     |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
|                | For motor-compressors conforming to IEC 60335-2-34 (including its Annex AA), the temperatures are not measured (IEC 60335-2-24)   |                 | P       |
|                | The temperature rise of the external enclosure of motor-operated appliances not applicable for: (IEC 60335-2-24)  |                 | —       |
|                | -built-in appliances  |                 | N/A     |
|                | -other appliances (distance from a wall < 75 mm)  |                 | N/A     |
|                | -max. temperature rises specified in Table 101  |                 | N/A     |
|                | The temperature of ballast windings and their associated wiring shall not exceed the values specified in 12.4 of IEC 60598-1:2014/AMD1:2017, when measured under the conditions stated (IEC 60335-2-24) |                 | N/A     |
| 11.101         | If the temperatures exceed the limits, the test is carried out again (IEC 60335-2-24):  |                 | —       |
|                | -winding temperatures at the end of a running cycle not higher than the limits given in Table 101   |                 | N/A     |
| 11.102         | Any defrosting system, temperature rises don't exceed the values given in 11.8 (IEC 60335-2-24)   |                 | N/A     |
|                | Manual defrosting (IEC 60335-2-24)  |                 | N/A     |
|                | Automatic defrosting (IEC 60335-2-24)   |                 | N/A     |
| 11.103         | Heating systems, other than defrosting, temperature rises don't exceed the values given in 11.8 (IEC 60335-2-24)  |                 | N/A     |
| <b>13</b>      | <b>LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE</b>   |                 |         |
| 13.1           | Leakage current not excessive and electric strength adequate  |                 | P       |
|                | Heating appliances operated at 1.15 times the rated power input (W) .....   |                 | N/A     |
|                | Motor-operated appliances and combined appliances supplied at 1.06 times the rated voltage (V) .....  |                 | P       |
|                | Protective impedance and radio interference filters disconnected before carrying out the tests  |                 | P       |
|                | The test of 13.2 does not apply to battery circuit (IEC 60335-2-24)   |                 | N/A     |
| 13.2           | The leakage current is measured by means of the circuit described in Figure 4 of IEC 60990:1999   |                 | P       |
|                | For class 0I appliances and class I appliances, except parts of class II construction, C may be replaced by a low impedance ammeter   |                 | P       |

| IEC 60335-2-24 |   |                      |         |
|----------------|---|----------------------|---------|
| Clause         | Requirement + Test  | Result - Remark      | Verdict |
|                | Leakage current measurements .....  | (see appended table) | P       |
|                | Leakage current measurements and limits (IEC 60335-2-24)  | (see appended table) | P       |
| 13.3           | The appliance is disconnected from the supply   |                      | P       |
|                | Electric strength tests according to table 4 .....  | (see appended table) | P       |
|                | No breakdown during the tests   |                      | P       |
|                | The test voltage for reinforced insulation is applied between separate circuits for battery operation and mains supply operation (IEC 60335-2-24) |                      | N/A     |
| <b>14</b>      | <b>TRANSIENT OVERVOLTAGES</b>   |                      |         |
|                | 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     |
|                | Lamp covers are not removed (IEC 60335-2-24)  |                      | N/A     |
| <b>15</b>      | <b>MOISTURE RESISTANCE</b>  |                      |         |
| 15.1           | Enclosure provides the degree of moisture protection according to classification of the appliance   |                      | N/A     |
|                | Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3                             |                      | N/A     |
|                | No trace of water on insulation which can result in a reduction of clearances 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     |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
|                | For IPX3 appliances, the base of wall mounted appliances is placed at the same level as the pivot axis of the oscillating tube  |                 | N/A     |
|                | For IPX4 appliances, the horizontal centre line of the appliance is aligned with the pivot axis of the oscillating tube, and  |                 | N/A     |
|                | for appliances normally used on the floor or table, the movement is limited to two times 90° for a period of 5 min, the support being placed at the level of the pivot axis of the oscillating tube |                 | N/A     |
|                | Wall-mounted appliances, take into account the distance to the floor stated in the instructions   |                 | N/A     |
|                | Appliances normally fixed to a ceiling are mounted underneath a horizontal unperforated support, the pivot axis of the oscillating tube located at the level of the underside of the support, and   |                 | N/A     |
|                | for IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min   |                 | N/A     |
|                | Appliances with type X attachment fitted with a flexible cord as described  |                 | N/A     |
|                | Detachable parts subjected to the relevant treatment with the main part   |                 | N/A     |
|                | However, if a part has to be removed for user maintenance and a tool is needed, this part is not removed  |                 | N/A     |
| 15.2           | Spillage of liquid does not affect the electrical insulation  |                 | P       |
|                | Spillage solution comprising water containing approximately 1 % NaCl and 0.6 % rinsing agent  |                 | P       |
|                | Appliances with type X attachment fitted with a flexible cord as described  |                 | N/A     |
|                | Appliances incorporating an appliance inlet tested with or without an connector, whichever is most unfavourable   |                 | N/A     |
|                | Detachable parts are removed  |                 | N/A     |
|                | Lamp covers are not removed (IEC 60335-2-24)  |                 | N/A     |
|                | Overfilling test with additional amount of the solution, over a period of 1 min (l).....: :   | 0,25L           | P       |
|                | The appliance withstands the electric strength test of 16.3   |                 | P       |
|                | No trace of water on insulation that can result in a reduction of clearances or creepage distances below values specified in clause 29  |                 | P       |

| IEC 60335-2-24 |  |                 |         |
|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
| 15.3           | Appliances proof against humid conditions  |                 | P       |
|                | Checked by test Cab: Damp heat steady state in IEC 60068-2-78  |                 | P       |
|                | Detachable parts removed and subjected, if necessary, to the humidity test with the main part  |                 | N/A     |
|                | Humidity test for 48 h in a humidity cabinet   | 23°C, 93%RH     | 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 60335-2-24)  |                 | P       |
|                | The relevant tests of 15.101.1 and 15.101.2 are carried out using the solution specified in 15.2 (IEC 60335-2-24)  |                 | P       |
| 15.101.1       | The apparatus shown in figure 101 is filled with the spillage solution and the test is carried out as specified (IEC 60335-2-24)                                 |                 | P       |
|                | Test acc. to 16.3 fulfilled and no reduction of clearances and creeping distances below values specified   |                 | P       |
|                | If defrost heating element is affected, test acc. to 22.102 is fulfilled   |                 | N/A     |
| 15.101.2       | Test with rectangular container and 0,5 l of spillage solution is carried out as specified (IEC 60335-2-24)  |                 | P       |
|                | Test acc. to 16.3 fulfilled and no reduction of clearances and creeping distances below values specified   |                 | P       |
|                | If defrost heating element is affected, test acc. to 22.102 is fulfilled   |                 | P       |
| 15.102         | Appliances subject to spillage onto the top are tested acc. to 15.103 and 15.104 (IEC 60335-2-24)  |                 | P       |
|                | Test of 15.103 is carried out using the solution specified in 15.2   |                 | P       |
| 15.103         | Appliances, other than built-in appliances, ice-makers and ice-cream appliances, are tilted at an angle of up to 2° (IEC 60335-2-24)                             |                 | N/A     |
|                | Test with 0.5 l spillage solution over the top of the appliance  |                 | N/A     |
| 15.104         | Ice-makers which are directly connected to the water supply, is filled with water as in normal use. The inlet valve is then held open for 1 min (IEC 60335-2-24) |                 | N/A     |

| IEC 60335-2-24 |  |                      |         |
|----------------|--|----------------------|---------|
| Clause         | Requirement + Test   | Result - Remark      | Verdict |
| 15.105         | Operation of a defrosting system does not affect the electrical insulation of defrost heating elements (IEC 60335-2-24)  |                      | N/A     |
|                | If the water is in contact with the defrost heating element or its insulation, test of 22.102 is carried out   |                      | N/A     |
| <b>16</b>      | <b>LEAKAGE CURRENT AND ELECTRIC STRENGTH</b>   |                      |         |
| 16.1           | Leakage current not excessive and electric strength adequate   |                      | P       |
|                | Protective impedance disconnected from live parts before carrying out the tests  |                      | N/A     |
|                | Tests carried out at room temperature and not connected to the supply  |                      | P       |
|                | The test of 16.2 does not apply to battery circuits (IEC 60335-2-24)   |                      | P       |
| 16.2           | Single-phase appliances: test voltage 1.06 times rated voltage (V).....:   | 254,4V               | P       |
|                | Three-phase appliances: test voltage 1.06 times rated voltage divided by $\sqrt{3}$ (V) .....  |                      | N/A     |
|                | Leakage current measurements .....   | (see appended table) | P       |
|                | Limit values doubled if:   |                      | —       |
|                | - all controls have an off position in all poles, or   |                      | N/A     |
|                | - the appliance has no control other than a thermal cut-out, or  |                      | N/A     |
|                | - all thermostats, temperature limiters and energy regulators do not have an off position, or  |                      | N/A     |
|                | - the appliance has radio interference filters   |                      | N/A     |
|                | With the radio interference filters disconnected, the leakage current do not exceed limits specified .....   |                      | N/A     |
|                | Limits for class 0I appliances and the various types of class I appliances (IEC 60335-2-24)  | (see appended table) | P       |
| 16.3           | Electric strength tests according to table 7 .....   | (see appended table) | P       |
|                | Test voltage applied between the supply cord and inlet bushing and cord guard and cord anchorage as specified .....  | (see appended table) | P       |
|                | No breakdown during the tests  |                      | P       |
|                | The test voltage specified in Table 7 for reinforced insulation is applied between separate circuits for battery operation and mains supply operation (IEC 60335-2-24) |                      | N/A     |

| IEC 60335-2-24 |   |                      |         |
|----------------|---|----------------------|---------|
| Clause         | Requirement + Test  | Result - Remark      | Verdict |
| <b>17</b>      | <b>OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS</b>  |                      |         |
|                | No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use.....:                                | (see appended table) | P       |
|                | Appliance supplied with 1.06 or 0.94 times rated voltage under the most unfavourable short-circuit or overload likely to occur in normal use (V).....:        | 254.4V               | P       |
|                | 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 |                      | P       |
|                | Temperature of the winding not exceeding the value specified in table 8   |                      | P       |
|                | However, limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1  |                      | N/A     |
| <b>18</b>      | <b>ENDURANCE</b>  |                      |         |
|                | Requirements and tests are specified in part 2 when necessary   |                      | N/A     |
| <b>19</b>      | <b>ABNORMAL OPERATION</b>   |                      |         |
| 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   |                      | P       |
|                | Appliances incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11                                     |                      | P       |
|                | Appliances incorporating voltage selector switches subjected to the test of 19.15   |                      | N/A     |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
|                | Subclauses 19.2 and 19.3 do not apply to heating systems (IEC 60335-2-24)   |                 | N/A     |
|                | In addition, fan motors and their thermal motor-protectors, if any, are subjected to the test specified in Annex AA. (IEC 60335-2-24)   |                 | P       |
|                | For any given type of fan motor and thermal motor-protection combination, this test is performed only once. (IEC 60335-2-24)  |                 | N/A     |
|                | Motor compressors not conforming to IEC 60335-2-34 are subjected to the tests specified in IEC 60335-2-34 19.101, 19.102 and 19.104 (IEC 60335-2-24)                            |                 | N/A     |
|                | For any given type of motor-compressor, this test is performed only once. (IEC 60335-2-24)  |                 | N/A     |
|                | Fan motors of ice-cream appliances are not subject to the locked-rotor test specified in Annex AA (IEC 60335-2-24)  |                 | N/A     |
|                | Unless otherwise specified, the tests are continued until a non-self-resetting thermal cut-out operates, or   |                 | N/A     |
|                | until steady conditions are established   |                 | N/A     |
|                | If a heating element or intentionally weak part becomes open-circuited, the relevant test is repeated on a second sample  |                 | N/A     |
| 19.2           | Test of appliances with heating elements with restricted heat dissipation; test voltage (V), power input of 0.85 times rated power input (W).....:                              |                 | 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     |

| IEC 60335-2-24 |   |                      |         |
|----------------|---|----------------------|---------|
| Clause         | Requirement + Test  | Result - Remark      | Verdict |
|                | The working voltage of the PTC heating element is increased by 5 % and the appliance is operated until steady conditions are re-established. The voltage is then increased in similar steps until 1.5 times working voltage or until the PTC heating element ruptures (V) ..... |                      | N/A     |
| 19.7           | Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque, or  |                      | N/A     |
|                | locking moving parts of other appliances  |                      | P       |
|                | 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 S2 or S3 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   |                      | N/A     |
|                | Other appliances supplied with rated voltage for a period as specified .....  |                      | P       |
|                | Winding temperatures not exceeding values specified in table 8 .....  | (see appended table) | P       |
|                | Fan motors of ice-cream appliances are tested for 5 min (IEC 60335-2-24)  |                      | N/A     |
| 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 60335-2-24)  |                      | N/A     |
| 19.9           | Not applicable (IEC 60335-2-24)   |                      | —       |
| 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  |                      | P       |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
|                | restarting does not result in a hazard  |                 | P       |
|                | Appliances having a device with an off position obtained by electronic disconnection, or a device placing the appliance in a stand-by mode, subjected to the tests of 19.11.4                       |                 | P       |
|                | If the safety of the appliance under any of the fault conditions depends on the operation of a miniature fuse-link complying with IEC 60127, the test of 19.12 is carried out                       |                 | P       |
|                | During and after each test the following is checked:  |                 | --      |
|                | - the temperature of the windings do not exceed the values specified in table 8   |                 | P       |
|                | - the appliance complies with the conditions specified in 19.13   |                 | P       |
|                | - any current flowing through protective impedance not exceeding the limits specified in 8.1.4  |                 | P       |
|                | If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided both of the following conditions are met:                     |                 | —       |
|                | - 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   |                 | P       |
|                | d) short circuit of any two terminals of an electronic component, other than integrated circuits  |                 | P       |

| IEC 60335-2-24 |  |                 |         |
|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
|                | This fault condition is not applied between the two circuits of an optocoupler   |                 | P       |
|                | e) failure of triacs in the diode mode   |                 | P       |
|                | f) failure of microprocessors and integrated circuits  |                 | P       |
|                | g) failure of an electronic power switching device   |                 | N/A     |
|                | Each low power circuit is short-circuited by connecting the low-power point to the pole of the supply source from which the measurements were made   |                 | N/A     |
| 19.11.3        | If the appliance incorporates a protective electronic circuit that operates to ensure compliance with clause 19, the appliance is tested as specified  |                 | 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,  |                 | P       |
|                | 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   |                 | P       |
|                | 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  |                 | P       |
|                | 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, at frequency ranges specified  |                 | P       |
| 19.11.4.3      | The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as specified   |                 | P       |
| 19.11.4.4      | The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5, test level 3 or 4 as specified   |                 | P       |
|                | An open circuit test voltage of 2 kV is applicable for the line-to-line coupling mode  |                 | P       |
|                | An open circuit test voltage of 4 kV is applicable for the line-to-earth coupling  |                 | P       |

| IEC 60335-2-24 |   |   |         |
|----------------|---|---|---------|
| Clause         | Requirement + Test  | Result - Remark                                 | Verdict |
|                | Earthed heating elements in class I appliances disconnected   |   | P       |
| 19.11.4.5      | The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3  |   | P       |
| 19.11.4.6      | Appliances having a rated current not exceeding 16 A are subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-11  |   | P       |
|                | Appliances having a rated current exceeding 16 A are subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-34  |   | N/A     |
| 19.11.4.7      | The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2   |   | P       |
| 19.11.4.8      | The appliance is supplied at rated voltage and operated under normal operation. After 60s the power supply is reduced to a level such that the appliance ceases to respond or parts controlled by the programmable component cease to operate   |   | P       |
|                | The appliance continues to operate normally, or   |   | P       |
|                | requires a manual operation to restart  |   | P       |
| 19.12          | If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 60127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A) ..... | Rated current : 3,15A<br>Measured current : 80A | P       |
| 19.13          | During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts  |   | P       |
|                | Temperature rises not exceeding the values shown in table 9.....:   | (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) .....  | 1000V   | P       |
|                | - supplementary insulation (V) .....  | 1750V   | P       |
|                | - reinforced insulation (V).....:   | 3000V   | P       |
|                | Temperature rises not exceeding the values shown in Table 7 or 150 °C for housing of motor-compressors (IEC 60335-2-24)   |   | P       |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
|                | After operation or interruption of a control, clearances and creepage distances across the functional insulation withstand the electric strength test of 16.3, the test voltage being twice the working voltage |                 | P       |
|                | The appliance does not undergo a dangerous malfunction, and   |                 | P       |
|                | no failure of protective electronic circuits, if the appliance is still operable  |                 | P       |
|                | Appliances tested with an electronic switch in the off position, or in the stand-by mode:   |                 | —       |
|                | - do not become operational, or   |                 | P       |
|                | - 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     |
|                | The temperature of the housing of motor-compressors other than those which comply with IEC 60335-2-34 is determined at the end of the test period and shall not exceed 150 °C (IEC 60335-2-24)                  |                 | 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   |                 | P       |
|                | 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         | Heating systems dimensioned and located properly and comply with 19.13 during and after the test (IEC 60335-2-24)   |                 | N/A     |
|                | Self-resetting thermal cut-outs are short-circuited unless they comply with 24.1.4, the number of cycles of operation being 100 000.  |                 | N/A     |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
| 19.102         | Ice-makers and ice-cream appliances so constructed that they do not cause any risk and comply with 19.13 during and after the tests (IEC 60335-2-24)  |                 | P       |
| 19.103         | Appliances intended for camping and similar use tested on an inclined support (5 °) and comply with 19.13 during and after the test (IEC 60335-2-24)  |                 | N/A     |
| 19.104         | Illuminating equipment shall not cause a fire hazard under abnormal operating conditions (IEC 60335-2-24)   |                 | N/A     |
|                | Test as specified (IEC 60335-2-24)  |                 | N/A     |
|                | Illuminating equipment having discharge lamps is operated under the fault conditions specified in items a), d) and e) of 12.5.1 of IEC 60598-1:2014/AMD1:2017, the appliance being supplied at rated voltage until temperature stabilisation of the measured parts (IEC 60335-2-24) |                 | N/A     |
|                | During and after the test, the appliance shall comply with 19.13 (IEC 60335-2-24)   |                 | N/A     |
|                | The temperature of ballast windings and their associated wiring shall not exceed the values specified in 12.5 of IEC 60598-1:2014/AMD1:2017 when measured under the conditions specified (IEC 60335-2-24)   |                 | N/A     |
| 19.105         | Appliances intended for battery operation properly constructed and comply with 19.13 during and after the test (IEC 60335-2-24)   |                 | N/A     |
| <b>20</b>      | <b>STABILITY AND MECHANICAL HAZARDS</b>   |                 |         |
| 20.1           | Ice-cream appliances shall have adequate stability (IEC 60335-2-24)   |                 | P       |
|                | Tilting test through an angle of 10°, appliance placed on an inclined plane/horizontal support, not connected to the supply mains; appliance does not overturn  |                 | P       |
|                | Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°  |                 | N/A     |
|                | Possible heating test in overturned position; temperature rise does not exceed values shown in table 9  |                 | N/A     |
| 20.2           | Moving parts adequately arranged or enclosed as to provide protection against personal injury   |                 | P       |
|                | Protective enclosures, guards and similar parts are non-detachable, and   |                 | P       |
|                | have adequate mechanical strength   |                 | P       |

| IEC 60335-2-24 |  |                      |         |
|----------------|--|----------------------|---------|
| Clause         | Requirement + Test   | Result - Remark      | Verdict |
|                | Enclosures that can be opened by overriding an interlock are considered to be detachable parts   |                      | P       |
|                | Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard by unexpected closure  |                      | N/A     |
|                | Not possible to touch dangerous moving parts with the test probe described   |                      | P       |
| 20.101         | Refrigeration appliances and ice-makers shall have adequate stability.<br>Tests according to 20.102, 20.103 and 20.104 (IEC 60335-2-24)  |                      | P       |
|                | Fixed appliances with a height not exceeding 1,3 m are tested as free-standing appliances.   |                      | N/A     |
|                | Appliance shall not tilt by more than 2°   |                      | P       |
|                | This requirement does not apply to built-in appliances (IEC 60335-2-24)  |                      | N/A     |
| 20.102         | Tests with weights as described  |                      | N/A     |
|                | Test with door opened to 90° (IEC 60335-2-24)  |                      | N/A     |
|                | Test with door opened to 180° or to the limit of door stop (IEC 60335-2-24)  |                      | N/A     |
| 20.103         | Test with one of the drawers is pulled to the most onerous out position (IEC 60335-2-24)   |                      | N/A     |
|                | Test with two drawers are pulled to the most onerous out position (IEC 60335-2-24)   |                      | N/A     |
| 20.104         | Test with sliding drawers accessible without opening a door (IEC 60335-2-24)   |                      | N/A     |
|                | Door shelves are loaded as specified in 20.102 and opened 90° (IEC 60335-2-24)   |                      | N/A     |
| <b>21</b>      | <b>MECHANICAL STRENGTH</b>   |                      |         |
| 21.1           | Covers of lamps within the appliance are considered likely to be damaged in normal use. Lamps are not tested (IEC 60335-2-24)  |                      | —       |
|                | 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     |

| IEC 60335-2-24 |  |                 |         |
|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
|                | If necessary, repetition of groups of three blows on a new sample  |                 | N/A     |
|                | For accessible glass panels, the impact energy is 1,00 J (IEC 60335-2-24)  |                 | 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         | Appliances for camping or similar use tested against the effects of dropping and vibration as specified (IEC 60335-2-24)   |                 | N/A     |
| 21.102         | Lamps are protected against mechanical shocks (IEC 60335-2-24)   |                 | N/A     |
| <b>22</b>      | <b>CONSTRUCTION</b>  |                 |         |
| 22.1           | Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled   | IPX0            | N/A     |
| 22.2           | Stationary appliance: means to ensure all-pole disconnection from the supply being provided:   |                 | —       |
|                | - a supply cord fitted with a plug, or   |                 | N/A     |
|                | - a switch complying with 24.3, or   |                 | N/A     |
|                | - a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided, or   |                 | N/A     |
|                | - an appliance inlet   |                 | N/A     |
|                | Single-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase, permanently connected class 01 and class I appliances, connected to the phase conductor |                 | N/A     |
| 22.3           | Appliance provided with pins: no undue strain on socket-outlets  |                 | N/A     |
|                | Applied torque not exceeding 0.25 Nm   |                 | N/A     |
|                | Pull force of 50 N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not N/A displaced by more than 1 mm                               |                 | N/A     |
|                | Each pin subjected to a torque of 0.4 Nm; the pins are not rotating, unless  |                 | N/A     |
|                | rotating does not impair compliance with this standard   |                 | N/A     |

| IEC 60335-2-24 |  |                 |         |
|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
| 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 pins, 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 |                 | P       |
|                | Voltage not exceeding 34 V (V) .....   | 18V             | P       |
|                | 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   |                 | 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   |                 | P       |
|                | In case of doubt, test as described  |                 | N/A     |
| 22.7           | Compression-type appliances, including protective enclosures of a protected cooling system, using flammable refrigerants shall withstand (IEC 60335-2-24)  |                 | —       |
|                | - a gauge pressure of 3,5 times the saturated vapour pressure (70 °C)  |                 | N/A     |
|                | - a gauge pressure of 5 times the saturated vapour pressure (20 °C)  |                 | N/A     |
| 22.8           | Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use                                 |                 | N/A     |
| 22.9           | Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances, unless   |                 | P       |
|                | the substance has adequate insulating properties   |                 | N/A     |
|                | Tests as described (IEC 60335-2-24)  |                 | N/A     |
|                | Tests are not performed on motor-compressors complying with IEC 60335-2-34. (IEC 60335-2-24)   |                 | 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     |

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|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
|                | 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       |
| 22.12          | Handles, knobs etc. fixed in a reliable manner, if loosening result in a hazard  |                 | P       |
|                | Removing or fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible, if resulting in a hazard   |                 | P       |
|                | A choking hazard does not apply to appliances for commercial use   |                 | N/A     |
|                | Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied   | Knob            | P       |
|                | Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied   | Handle          | P       |
|                | If the part is removed and can be contained within the small parts cylinder, it is considered to be a choking hazard   |                 | P       |
| 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 |                 | N/A     |
| 22.14          | No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance  |                 | P       |
|                | No exposed pointed ends of self-tapping screws or other fasteners, likely to be touched by the user in normal use or during user maintenance   |                 | P       |
| 22.15          | Storage hooks and the like for flexible cords smooth and well rounded  |                 | 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     |

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|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
|                | Electric strength test of 16.3, voltage of 1000 V applied  |                 | N/A     |
| 22.17          | Not applicable to refrigeration appliances and ice-makers (IEC 60335-2-24)   |                 | —       |
| 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     |
| 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     |

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|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
| 22.30          | Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or   |                 | P       |
|                | so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete   |                 | P       |
| 22.31          | Neither clearances nor creepage distances over supplementary and reinforced insulation reduced below values specified in clause 29 as a result of wear   |                 | P       |
|                | Neither clearances nor creepage distances between live parts and accessible parts reduced below values for supplementary insulation if wires, screws etc. become loose   |                 | P       |
| 22.32          | Supplementary and reinforced insulation constructed or protected against pollution so that clearances or creepage distances are not reduced below the values in clause 29  |                 | P       |
|                | Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2   |                 | N/A     |
|                | Ceramic material not tightly sintered, similar materials or beads alone not used as supplementary or reinforced insulation   |                 | N/A     |
|                | Ceramic and similar porous material in which heating conductors are embedded is considered to be basic insulation, not reinforced insulation   |                 | N/A     |
|                | Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature  |                 | N/A     |
| 22.33          | Conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts are not in direct contact with live parts, or  |                 | P       |
|                | unearthed metal parts separated from live parts by basic insulation only   |                 | 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 |                 | P       |
|                | 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  |                 | P       |

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|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
|                | 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  |                 | P       |
|                | Heating conductors having only one layer of insulation are not in direct contact with water or ice during normal use (IEC 60335-2-24)   |                 | N/A     |
| 22.34          | Shafts of operating knobs, handles, levers etc. not live, unless  |                 | P       |
|                | the shaft is not accessible when the part is removed  |                 | N/A     |
| 22.35          | For other than class III constructions, handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation  |                 | P       |
|                | Such parts being of metal, and their shafts or fixings are likely to become live in the event of a failure of basic insulation, are either adequately covered by insulation material or their accessible parts are separated from their shafts or fixings by supplementary insulation     |                 | N/A     |
|                | This requirement does not apply to handles, levers and knobs on stationary appliances 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 |                 | N/A     |
|                | Insulating material covering metal handles, levers and knobs withstand the electric strength test of 16.3 for supplementary insulation  |                 | N/A     |
| 22.36          | For appliances other than class III, handles continuously held in the hand in normal use so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless   |                 | 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     |

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|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
| 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                        |                 | P       |
|                | 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 |                 | P       |
| 22.41          | No components, other than lamps, containing mercury  |                 | N/A     |
| 22.42          | Protective impedance consisting of at least two separate components  |                 | P       |
|                | Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited  |                 | P       |
|                | 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   |                 | P       |
| 22.43          | Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur  |                 | N/A     |
| 22.44          | Appliances not having an enclosure that is shaped or decorated like a toy  |                 | P       |
| 22.45          | When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.3 due to deformation as a result of an external force applied to the enclosure  |                 | P       |
| 22.46          | For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1   |                 | 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     |

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|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
| 22.48          | Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water   |                 | N/A     |
| 22.49          | For remote operation, the duration of operation is to be set before the appliance can be started, unless  |                 | N/A     |
|                | the appliance switches off automatically or can operate continuously without hazard   |                 | N/A     |
| 22.50          | Controls incorporated in the appliance take priority over controls actuated by remote operation   |                 | N/A     |
| 22.51          | There is a control on the appliance manually adjusted to the setting for remote operation before the appliance can be operated in this mode   |                 | N/A     |
|                | There is a visual indication showing that the appliance is adjusted for remote operation  |                 | N/A     |
|                | These requirements not necessary on appliances that can operate as follows, without giving rise to a hazard:  |                 | —       |
|                | - continuously, or  |                 | N/A     |
|                | - automatically, or   |                 | N/A     |
|                | - remotely  |                 | N/A     |
| 22.52          | Socket-outlets on appliances accessible to the user in accordance with the socket-outlet system used in the country in which the appliance is sold  |                 | N/A     |
| 22.53          | 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 |                 | N/A     |
| 22.54          | Button cells and batteries designated R1 not accessible without the aid of a tool, unless   |                 | N/A     |
|                | the cover of their compartment can only be opened after at least two independent movements have been applied simultaneously   |                 | N/A     |
| 22.55          | Devices operated to stop the intended function of the appliance, if any, are to be distinguished from other manual devices by means of shape, size, surface texture or position .....                   | Position        | P       |
|                | 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  |                 | P       |
|                | – 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     |

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|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
| 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     |
| 22.101         | Lampholders properly fixed (IEC 60335-2-24)  |                 | N/A     |
|                | Normal use includes during replacement of lamps (IEC 60335-2-24)   |                 | N/A     |
|                | Test with torque of (IEC 60335-2-24):  |                 | N/A     |
|                | Lampholders for a fluorescent lamp shall comply with the test of 4.4.4 i) in IEC 60598-1:2014/AMD1:2017 (IEC 60335-2-24)   |                 | N/A     |
| 22.102         | Insulated wire heaters and their joints protected against entry of water (IEC 60335-2-24)  |                 | N/A     |
|                | Requirement is not applicable to insulated wire heater connections to electrical terminals. (IEC 60335-2-24)   |                 | N/A     |
|                | 3 heating elements: 24 h immersion in water with 1 % NaCl; electric strength test between heating conductor and water (1'250 V, 15 min) (IEC 60335-2-24)   |                 | N/A     |
| 22.103         | Appliances employing a transcritical refrigeration system shall in the high pressure side of the refrigeration system include a pressure relief device on the compressor or between the compressor and the gas cooler. There shall be no shut off devices or other components except piping between the compressor and the pressure relief device, which could introduce a pressure drop. (IEC 60335-2-24) |                 | N/A     |
|                | Pressure relief device installed as described (IEC 60335-2-24)   |                 | N/A     |
|                | Test of pressure relief device as described (IEC 60335-2-24)   |                 | N/A     |
| 22.104         | Appliances with two or more temperature control devices controlling the same motor-compressor don't cause undue operation of the thermal motor-protector (IEC 60335-2-24)  |                 | N/A     |
|                | The test is carried out separately with each combination of control devices (IEC 60335-2-24)   |                 | N/A     |
| 22.105         | Appliances which can also be battery operated, the battery circuit is insulated from live parts by double insulation or reinforced insulation (IEC 60335-2-24)   |                 | N/A     |

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|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
|                | It is not possible to touch live parts when making the connections to the battery (IEC 60335-2-24)  |                 | N/A     |
|                | Specified for double insulation or reinforced insulation (IEC 60335-2-24)   |                 | N/A     |
| 22.106         | The mass of refrigerant (flammable refrigerant) shall not exceed 150 g (IEC 60335-2-24)   |                 | P       |
| 22.107         | Compression-type appliances with a protected cooling system and which use flammable refrigerants shall be constructed to avoid any fire or explosion hazard, in the event of leakage of the cooling system (IEC 60335-2-24)   |                 | N/A     |
|                | Compliance is checked by inspection and by the tests of 22.107.1, 22.107.2 and if necessary, 22.107.3. (IEC 60335-2-24)   |                 | N/A     |
| 22.107.1       | A leakage is simulated at the most critical point of the cooling system (method as specified) (IEC 60335-2-24)  |                 | N/A     |
|                | Measured as specified   |                 | N/A     |
|                | The measured value shall not exceed 75 % of the lower flammability limit of the refrigerant specified in Table 102 and shall not exceed 50 % of the lower flammability limit of the refrigerant specified in Table 102 for a period exceeding 5 min.. (IEC 60335-2-24)                |                 | N/A     |
| 22.107.2       | All accessible surfaces of protected cooling system components, are scratched using the tool whose tip is shown in figure 102 (IEC 60335-2-24)  |                 | N/A     |
|                | The tool is applied using the following parameters (IEC 60335-2-24):  |                 | —       |
|                | - force at right angles to the surface to be tested<br>35 N + 3 N   |                 | N/A     |
|                | - force parallel to the surface to be tested 250 N  |                 | N/A     |
|                | The appropriate part shall withstand the test of 22.7 reduced by 50 % (IEC 60335-2-24)  |                 | N/A     |
| 22.107.3       | If aluminium having a purity of less than 99.5 % according to ISO 209 is used in a protected cooling system that is embedded in thermal insulation, a sample of the cooling system is subjected to the salt mist test of IEC 60068-2-11 for a test duration of 48 h. (IEC 60335-2-24) |                 | N/A     |

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|----------------|---|---|---------|
| Clause         | Requirement + Test  | Result - Remark                               | Verdict |
| 22.108         | For compression-type appliances with unprotected cooling systems and which use flammable refrigerants, any electrical component, other than luminaires, located inside the food storage compartment, that during normal operation or abnormal operation produces arcs or sparks and luminaires, tested and found at least to comply with the requirements of IEC 60079-15 or the requirements for level protection "dc" of IEC 60079-1, as modified by Annex CC, for group IIA gases or the refrigerant used (IEC 60335-2-24) | Comply with the requirements of IEC 60079-15. | P       |
|                | This requirement does not apply to: (IEC 60335-2-24)  |   |         |
|                | – non-self-resetting protective devices necessary for compliance with Clause 19,  |   | 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 (IEC 60335-2-24)   |   | N/A     |
|                | Separate components such as thermostats which contain less than 0,5 g of flammable gas are not considered liable to cause a fire or explosion hazard in the event of a leakage from the component itself. (IEC 60335-2-24)  |   | P       |
|                | Appliances with an unprotected cooling system are those where at least one part of the cooling system is placed inside a food storage compartment or those which do not comply with 22.107. (IEC 60335-2-24)  |   | N/A     |
|                | Other types of protection for electrical apparatus used in potentially explosive atmospheres covered by IEC 60079 (all parts) are also acceptable. (IEC 60335-2-24)   |   | N/A     |
| 22.109         | Compression-type appliance which use flammable refrigerants shall be constructed so that leaked refrigerant will not stagnate so as to cause a fire hazard in areas outside the food storage compartments where the appliance's electrical components, other than non-self-resetting protective devices necessary for compliance with Clause 19, are fitted (IEC 60335-2-24)  |   | P       |
|                | The requirement does not apply to areas where (IEC 60335-2-24)  |   |         |
|                | – non-self-resetting protective devices necessary for compliance with Clause 19, or   |   | N/A     |
|                | – intentionally weak parts that become permanently open-circuited during the tests of Clause 19   |   | N/A     |

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|----------------|--|---|---------|
| Clause         | Requirement + Test   | Result - Remark                               | Verdict |
|                | are mounted, even if they produce arcs or sparks during operation.   |   | N/A     |
|                | Separate components such as thermostats which contain less than 0,5 g of flammable gas are not considered liable to cause a fire or explosion hazard in the event of a leakage of the component itself. (IEC 60335-2-24)   |   | N/A     |
|                | Irrespective of the requirement given in Clause 5.4 of IEC 60079-15, surface temperature limits are specified in 22.110. (IEC 60335-2-24)  |   | N/A     |
|                | Other types of protection for electrical apparatus used in potentially explosive atmospheres covered by IEC 60079 (all parts) are also acceptable. (IEC 60335-2-24)  | Comply with the requirements of IEC 60079-15. | P       |
|                | Tested as follows, unless the electrical components comply at least with the requirements in Annex CC for group IIA gases or the refrigerant used (IEC 60335-2-24)   |   | N/A     |
|                | Test: A quantity equal to 50 % + 1.5 g of the refrigerant charge is injected into the considered area as specified (IEC 60335-2-24)  |   | N/A     |
|                | The measured value shall not exceed 75 % LEL of the refrigerant (Table 102) and shall not exceed 50 % LEL for a period exceeding 5 min (IEC 60335-2-24)  |   | N/A     |
| 22.110         | Temperatures on surfaces be exposed to leakage of flammable refrigerants shall not exceed the ignition temperature (Table 102) reduced by 100 K (IEC 60335-2-24)   |   | P       |
| 22.111         | In compression-type appliances which use flammable refrigerant: Prevention from galvanic coupling in contact points between uncoated aluminium and copper pipes (or similar metals) by positive means such as the use of insulated sleeving or spacers. (IEC 60335-2-24) |   | P       |
|                | This requirement is not applicable to the aluminium fins of heat exchangers and other aluminium parts that are in contact with outer surface of copper pipes. (IEC 60335-2-24)   |   | P       |
| 22.112         | Doors and lids of compartments in appliances with a free space shall be capable of being opened from the inside (IEC 60335-2-24)   |   | N/A     |
|                | The door shall open before the force exceeds 70 N (IEC 60335-2-24)   |   | N/A     |
| 22.113         | Drawers which are only accessible after openings a door or lid shall not contain a free space (IEC 60335-2-24)   |   | N/A     |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
| 22.114         | Drawers which are accessible without opening a door and which contain a free space shall have an opening in their rear wall and be capable of being opened from the inside (IEC 60335-2-24) |                 | N/A     |
|                | The drawers shall open before the force exceeds 70 N (IEC 60335-2-24)   |                 | N/A     |
| 22.115         | Appliances for household use which contain compartments with a free space any door or drawer shall not be fitted with a self-latching lock (IEC 60335-2-24)                                 |                 | N/A     |
|                | Key operated locks shall require two independent movements to actuate the lock or be of a type that automatically ejects the key when unlocked (IEC 60335-2-24)                             |                 | N/A     |
| 22.116         | Accessible glass panels with an area having any two orthogonal dimensions exceeding 75 mm shall be made from (IEC 60335-2-24)   |                 | N/A     |
|                | – glass that breaks into small pieces when it fractures; or   |                 | N/A     |
|                | – glass that is not released or dropped from its normal position when broken;   |                 | N/A     |
|                | – glass that has enhanced mechanical strength   |                 | N/A     |
|                | a) glass that breaks tested as specified  |                 | N/A     |
|                | b) glass that is not released or dropped tested as specified  |                 | N/A     |
|                | c) glass with enhanced mechanical strength tested as specified  |                 | N/A     |
| 22.117         | In refrigerating appliances, thermal insulation shall be encased in and be in contact with (IEC 60335-2-24)   |                 | N/A     |
|                | – metallic material having a thickness not less than 0,20 mm and having a melting point temperature of not less than 1 000 °C; or   |                 | N/A     |
|                | – a polymeric material classified as 5VA according to IEC 60695-11-20 provided that the test sample used for the classification was no thicker than the relevant part of the appliance; or  |                 | N/A     |
|                | – a single layer non-polymeric material that has been tested in accordance with Annex EE; or  |                 | N/A     |
|                | – a material with multiple layers, at least one of which is non-polymeric, that has been tested in accordance with Annex EE   |                 | N/A     |

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|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
|                | A hole or the combined area of holes within 150 mm of each other not exceed 25 cm <sup>2</sup> . The total combined area of the holes shall not exceed 125 cm <sup>2</sup> . Holes up to 3 mm <sup>2</sup> and material that join overlapping metal parts are ignored. The area of holes that have metallic objects such as pipes protruding from them are calculated omitting the area taken up from the metallic material. (IEC 60335-2-24) |                 | N/A     |
|                | These requirements are also applicable to material encasing thermal insulation between the compressor compartment and food storage compartments. (IEC 60335-2-24)   |                 | N/A     |
|                | These requirements are not applicable to: (IEC 60335-2-24)  |                 | N/A     |
|                | – parts in food storage compartments such as compartment liner, partition of the cabinet;   |                 | N/A     |
|                | – parts providing access to the food storage compartment such as doors, drawers and lids;   |                 | N/A     |
|                | – parts within 150 mm from the top surface of the appliance, the top surface being a horizontal plane from the highest point of the appliance, unless the inlet opening for the supply cord is within 150 mm of the exempt area;  |                 | N/A     |
|                | – parts within 50 mm of food storage compartment seals;   |                 | N/A     |
|                | – portable appliances with no motor-compressor  |                 | N/A     |
| <b>23</b>      | <b>INTERNAL WIRING</b>  |                 |         |
| 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     |

| IEC 60335-2-24 |  |                 |         |
|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
|                | NOTE : This does not apply to external conductors (IEC 60335-2-24)   |                 |         |
|                | Adequate insulating lining provided inside a coiled spring, the turns of which touch one another   |                 | N/A     |
|                | No damage after 100 000 flexings for conductors flexed during normal use (IEC 60335-2-24)  |                 | N/A     |
|                | The number of flexings for an incorporated ice maker is 50 000 (IEC 60335-2-24)  |                 | 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 15 W  |                 | 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,                                |                 | P       |
|                | except that the sheath of a cord complying with IEC 60227 or IEC 60245 may provide supplementary insulation.                             |                 | N/A     |
|                | A single layer of internal wiring insulation does not provide reinforced insulation  |                 | P       |
| 23.6           | Sleeving used as supplementary insulation on internal wiring retained in position by clamping at both ends, or                           |                 | P       |
|                | 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  |                 | P       |
| 23.8           | Aluminium wires not used for internal wiring   |                 | P       |

| IEC 60335-2-24 |   |                      |         |
|----------------|---|----------------------|---------|
| 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     |
| <b>24</b>      | <b>COMPONENTS</b>   |                      |         |
| 24.1           | Components comply with safety requirements in relevant IEC standards  |                      | 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  |                      | P       |
|                | Relays tested as part of the appliance, or  |                      | P       |
|                | alternatively acc. to IEC 60730-1, and meeting the additional requirements in IEC 60335-1   |                      | P       |
|                | The requirements of Clause 29 apply between live parts of components and accessible parts of the appliance  |                      | 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  |                      | 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   |                      | 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                      |                      | P       |
|                | If these conditions are not satisfied, the component is tested as part of the appliance.  |                      | P       |
|                | Power electronic converter circuits not required to comply with IEC 62477-1, they are tested as part of the appliance   |                      | N/A     |
|                | If components have not been tested and found to comply with relevant IEC standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9   |                      | P       |

| IEC 60335-2-24 |  |                 |         |
|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
|                | 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 60335-2-24)                                |                 | 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   |                 | P       |
|                | 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  |                 | P       |
|                | If the switch only operates a motor starting relay complying with IEC 60730-2-10 with the number of cycles of a least 10 000 as specified, the complete switching system need not be tested  |                 | N/A     |
|                | The number of operations for other switches (IEC 60335-2-24):  |                 | —       |
|                | - quick-freeze switches: 300   |                 | N/A     |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
|                | - manual and semi-automatic defrost switches<br>300   |                 | N/A     |
|                | - door switches<br>50 000   |                 | N/A     |
|                | - on/off switches<br>300  |                 | N/A     |
|                | If the switch operates a relay or contactor, the complete switching system is subjected to the test   |                 | P       |
|                | If the switch only operates a motor starting relay complying with IEC 60730-2-10 with the number of cycles of a least 10'000 as specified, the complete switching system need not be tested |                 | N/A     |
| 24.1.4         | Automatic controls comply with IEC 60730-1 with the relevant part 2. The number of cycles of operation being at least:  |                 | —       |
|                | - thermostats:<br>10 000  |                 | N/A     |
|                | - temperature limiters:<br>1 000  |                 | N/A     |
|                | - self-resetting thermal cut-outs:<br>300   |                 | N/A     |
|                | - voltage maintained non-self-resetting thermal cut-outs:<br>1 000  |                 | N/A     |
|                | - other non-self-resetting thermal cut-outs:<br>30  |                 | N/A     |
|                | - timers:<br>3 000  |                 | N/A     |
|                | - energy regulators:<br>10 000  |                 | N/A     |
|                | - self-resetting thermal cut-outs which may influence the test results of 19.101 and which are not short-circuited during this test: (IEC 60335-2-24)<br>100 000                            |                 | N/A     |
|                | - thermostats which control the motor- compressor: (IEC 60335-2-24)<br>100 000  |                 | N/A     |
|                | - motor-compressor starting relays: (IEC 60335-2-24)<br>100 000   |                 | N/A     |
|                | - automatic thermal motor-protectors for motor-compressors of the hermetic and semi-hermetic type: (IEC 60335-2-24)<br>2 000 or acc to 15 day-test  |                 | N/A     |
|                | - manual reset thermal motor-protectors for motor-compressors of the hermetic and semi-hermetic type: (IEC 60335-2-24)<br>50  |                 | N/A     |
|                | - other automatic thermal motor-protectors: except for fan-motors (IEC 60335-2-24)<br>2 000   |                 | N/A     |
|                | - other manual reset thermal motor protectors: (IEC 60335-2-24)<br>30   |                 | N/A     |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| 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 60335-2-24) 1 |                 | N/A     |
|                | - electrical pressure relief devices for automatic operation: (IEC 60335-2-24) 30 000   |                 | N/A     |
|                | - electrical pressure relief devices for manual reset: (IEC 60335-2-24) 300   |                 | N/A     |
|                | Electrical pressure relief devices comply with IEC 60730-2-6 and with listed additional requirements (IEC 60335-2-24)   |                 | N/A     |
|                | Requirement for mechanical pressure relief devices (IEC 60335-2-24)   |                 | N/A     |
|                | Testing of pressure relief devices of the bursting disc type with the appliance if not certified (IEC 60335-2-24).  |                 | N/A     |
|                | Marking of devices as specified (IEC 60335-2-24)  |                 | 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  |                 | N/A     |
| 24.1.5         | Appliance couplers comply with IEC 60320-1  |                 | N/A     |
|                | However, for class II appliances classified higher than IPX0, the appliance couplers comply with IEC 60320-2-3  |                 | N/A     |
|                | Interconnection couplers comply with IEC 60320-2-2  |                 | N/A     |
| 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     |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
| 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  |                 | P       |
|                | 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, automatic controls or power supplies 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   |                 | N/A     |
|                | the solder has a melting point of at least 230 °C   |                 | N/A     |
| 24.3           | Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and have a contact separation in all poles, providing full disconnection under overvoltage category III conditions                         |                 | N/A     |
|                | Appliances for camping or similar use (IEC 60335-2-24):   |                 | N/A     |
|                | Voltage selection switches used in appliances for camping or similar use shall have a contact separation in all poles that provide full disconnection from the supply under overvoltage category III conditions. (IEC 60335-2-24)                               |                 | 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 shall be marked with their voltage rating and their rated capacitance and shall be used in accordance with these markings.   |                 | 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 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| 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 1.1xUn (IEC 60335-2-24)   |                 | 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 the 96 h test is carried out at elevated temperatures as specified: (IEC 60335-2-24)  |                 | N/A     |
| 24.8           | Motor running capacitors comply with IEC 60252-1 under the following conditions: (IEC 60335-2-24)   |                 | N/A     |
|                | – class of safety protection: S2;   |                 | N/A     |
|                | – class of operation: class A or class B;   |                 | N/A     |
|                | – damp heat test severity;  |                 | N/A     |
|                | • test duration 21 days;  |                 | N/A     |
|                | • temperature 40 °C ± 2 °C at a relative humidity of 93 % ± 3 %.  |                 | N/A     |
| 24.101         | Lampholders be of the insulated type (IEC 60335-2-24)   |                 | N/A     |
| 24.102         | The discharge capacity of the pressure relief device shall be such that it is able to release an adequate amount of refrigerant so that the pressure during the release of the refrigerant does not increase beyond the pressure setting of the pressure relief device even if the compressor is operating (IEC 60335-2-24) |                 | N/A     |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
| <b>25</b>      | <b>SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS</b>  |                 |         |
|                | This clause of Part 1 is not applicable to those parts related to motor-compressors with facilities for connecting a supply cord, complying with the appropriate requirements of IEC 60335-2-34. (IEC 60335-2-24) |                 | P       |
|                | Motor-compressors with facilities for connecting a supply cord, complying with the appropriate requirements of IEC 60335-2-34 are not subjects to the following tests (IEC 60335-2-24)                            |                 | P       |
| 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   |                 | P       |
|                | - an appliance inlet having at least the same degree of protection against moisture as required for the appliance, or   |                 | N/A     |
|                | - pins for insertion into socket-outlets  |                 | N/A     |
| 25.2           | Appliance not provided with more than one means of connection to the supply mains   |                 | N/A     |
|                | Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown         |                 | N/A     |
|                | Mains-operated appliances shall not be provided with more than one means of connection to the supply unless (IEC 60335-2-24)  |                 | P       |
|                | – 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     |
|                | Appliances which can be both mains and battery operated shall be provided with a separate means for the connection of the mains and of the battery.   |                 | 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     |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
|                | - a set of terminals for the connection of cables of fixed wiring, cross-sectional areas specified in 26.6, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support  |                 | N/A     |
|                | - a set of terminals and cable entries, conduit entries, knock outs or glands, allowing connection of appropriate types of cable or conduit, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support                                   |                 | N/A     |
|                | For a fixed appliance constructed so that parts can be removed to facilitate easy installation, this requirement is met if it is possible to connect the fixed wiring without difficulty after a part of the appliance has been fixed to its support  |                 | N/A     |
| 25.4           | Cable and conduit entries, rated current of appliance not exceeding 16 A, 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   |                 | N/A     |
|                | - type Y attachment   |                 | P       |
|                | - 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  |                 | P       |
| 25.7           | Supply cords, other than for class III appliances, being one of the following types:  |                 | —       |
|                | - rubber sheathed (at least 60245 IEC 53)   |                 | N/A     |
|                | - polychloroprene sheathed (at least 60245 IEC 57)  |                 | N/A     |
|                | - polyvinyl chloride sheathed. Not used if they are likely to touch metal parts having a temperature rise exceeding 75 K during the test of clause 11   |                 | —       |
|                | <ul style="list-style-type: none"> <li>Light polyvinyl chloride sheathed cord (code designation 60227 IEC 52) and heat-resistant</li> <li>light polyvinyl chloride sheathed cord (code designation 60227 IEC 56) are allowed regardless of the mass of the appliance. (IEC 60335-2-24)</li> </ul> |                 | N/A     |

| IEC 60335-2-24 |  |                                  |         |
|----------------|--|----------------------------------|---------|
| Clause         | Requirement + Test   | Result - Remark                  | Verdict |
|                | <ul style="list-style-type: none"> <li>ordinary polyvinyl chloride sheathed cord (60227 IEC 53), for other appliances</li> </ul>   | H05VV-F                          | P       |
|                | - heat resistant polyvinyl chloride sheathed. Not used for type X attachment other than specially prepared cords   |                                  | —       |
|                | <ul style="list-style-type: none"> <li>heat-resistant light polyvinyl chloride sheathed cord (60227 IEC 56) is allowed regardless of the mass of the appliance (IEC 60335-2-24)</li> </ul> |                                  | N/A     |
|                | <ul style="list-style-type: none"> <li>heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), for other appliances</li> </ul>   |                                  | N/A     |
|                | - halogen-free, low smoke, thermoplastic insulated and sheathed  |                                  | —       |
|                | <ul style="list-style-type: none"> <li>light duty halogen-free low smoke flexible cable (62821 IEC 101) for circular cable and (62821 IEC 101f) for flat cable</li> </ul>                  |                                  | N/A     |
|                | <ul style="list-style-type: none"> <li>Ordinary duty halogen-free low smoke flexible cable (62821 IEC 102) for circular cable and (62821 IEC 102f) for flat cable</li> </ul>               |                                  | N/A     |
|                | Supply cords for class III appliances adequately insulated   |                                  | N/A     |
|                | Test with 500 V for 2 min for supply cords of class III appliances that contain live parts   |                                  | N/A     |
|                | This subclause does not apply to flexible leads or cords used to connect an appliance to a SELV power supply. (IEC 60335-2-24)   |                                  | N/A     |
| 25.8           | Nominal cross-sectional area of supply cords not less than table 11; rated current (A); cross-sectional area (mm <sup>2</sup> ) .....  | 0,84A max<br>0,75mm <sup>2</sup> | P       |
| 25.9           | Supply cords not in contact with sharp points or edges   |                                  | P       |
| 25.10          | Supply cord of class I appliances have a green/yellow core for earthing  |                                  | P       |
|                | In multi-phase appliances, the colour of the neutral conductor of the supply cord is blue  |                                  | N/A     |
|                | 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     |
| 25.11          | Conductors of supply cords not consolidated by soldering where they are subject to contact pressure, unless  |                                  | P       |
|                | the contact pressure is provided by spring terminals   |                                  | N/A     |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
| 25.12          | Insulation of the supply cord not damaged when moulding the cord to part of the enclosure   |                 | N/A     |
| 25.13          | Inlet openings so constructed as to prevent damage to the supply cord   |                 | P       |
|                | If 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                                  |                 | P       |
|                | 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     |
|                | This subclause does not apply to flexible leads or cords used to connect an appliance to a SELV power supply. (IEC 60335-2-24)  |                 | 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     |
| 25.15          | For appliances with supply cord and appliances to be permanently connected to fixed wiring by a flexible cord, conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage |                 | P       |
|                | The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged  |                 | P       |
|                | Pull and torque test of supply cord:  |                 | —       |
|                | - fixed appliances: pull 100 N; torque (not on automatic cord reel) (Nm) .....  |                 | N/A     |

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| Clause         | Requirement + Test  | Result - Remark    | Verdict |
|                | - other appliances: values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm) .....         | >4kg, 100N, 0,35Nm | P       |
|                | Cord not damaged and max. 2 mm displacement of the cord   | Max.: 1,28mm       | P       |
| 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     |
|                | 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                      | Type Y             | P       |
| 25.18          | Cord anchorages only accessible with the aid of a tool, or  |                    | N/A     |
|                | Constructed so that the cord can only be fitted with the aid of a tool  |                    | P       |

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| Clause         | Requirement + Test   | Result - Remark | Verdict |
| 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  | Type Y          | P       |
| 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     |
|                | - 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:   |                 | —       |
|                | - 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     |
|                | - 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     |
|                | If necessary, electric strength test of 16.3   |                 | N/A     |

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| Clause         | Requirement + Test  | Result - Remark | Verdict |
|                | For appliances which can be battery operated, if the battery is placed in a separate box, the flexible lead or flexible cord used to connect the box to the appliance is considered to be an interconnection cord. (IEC 60335-2-24)                       |                 | 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     |
| 25.101         | Appliances which can be battery operated have suitable means for connection of the battery as specified (IEC 60335-2-24)  |                 | N/A     |
|                | Appliances shall be provided with terminals or flexible leads, or a flexible cord which, for connection to the battery terminals, fitted with clamps or other devices suitable for use with the type of battery marked on the appliance. (IEC 60335-2-24) |                 | N/A     |
| <b>26</b>      | <b>TERMINALS FOR EXTERNAL CONDUCTORS</b>  |                 |         |
|                | This clause of part 1 is not applicable to those parts of motor-compressors with facilities for connecting a supply cord and complying with IEC 60335-2-34 (IEC 60335-2-24)   |                 | P       |
| 26.1           | Appliances provided with terminals or equally effective devices for connection of external conductors   |                 | P       |
|                | Terminals only accessible after removal of a non-detachable cover, except   |                 | P       |
|                | for class III appliances that do not contain live parts   |                 | N/A     |
|                | Earthing terminals may be accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection   |                 | N/A     |
| 26.2           | Appliances with type X attachment and appliances for the connection of cables of 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  |                 |         |
|                | Screws and nuts not used to fix any other component, except   |                 | N/A     |

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|----------------|--|-----------------|---------|
| 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     |

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|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
| 26.6           | Terminals for type X attachment and for connection of cables of fixed wiring suitable for connection of conductors with cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm <sup>2</sup> ) .....    |                 | N/A     |
|                | If a specially prepared cord is used, terminals need only be suitable for that cord   |                 | N/A     |
| 26.7           | Terminals for type X attachment, except in class III appliances not containing live parts, accessible after removal of a cover or part of the enclosure   |                 | N/A     |
| 26.8           | Terminals for the connection of fixed wiring, including the earthing terminal, located close to each other  |                 | N/A     |
| 26.9           | Terminals of the pillar type constructed and located as specified   |                 | N/A     |
| 26.10          | Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless   |                 | N/A     |
|                | conductors ends fitted with means suitable for screw terminals  |                 | N/A     |
|                | Pull test of 5 N to the connection  |                 | N/A     |
| 26.11          | For type Y and Z attachment, soldered, welded, crimped or similar connections may be used   |                 | P       |
|                | 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     |
|                | Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection between live parts and accessible metal parts, between battery supply terminals if any (IEC 60335-2-24) |                 | N/A     |
| <b>27</b>      | <b>PROVISION FOR EARTHING</b>   |                 |         |
|                | Compliance is not checked on parts related to motor-compressors if the motor-compressor complies with IEC 60335-2-34 (IEC 60335-2-24)   |                 | P       |
| 27.1           | Accessible metal parts of Class 0I and I appliances permanently and reliably connected to an earthing terminal or earthing contact of the appliance inlet   | Class I         | P       |
|                | Earthing terminals and earthing contacts not connected to the neutral terminal  |                 | P       |

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|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
|                | Class 0, II and III appliances have no provision for protective earthing   |                 | N/A     |
|                | Class II appliances and class III appliances can incorporate an earth for functional purposes  |                 | N/A     |
|                | 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   |                 | P       |
|                | Terminals for the connection of external equipotential bonding conductors allow connection of conductors of 2.5 to 6 mm <sup>2</sup> , and   |                 | N/A     |
|                | - do not provide earthing continuity between different parts of the appliance, and   |                 | N/A     |
|                | - conductors cannot be loosened without the aid of a tool  |                 | N/A     |
|                | Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes  |                 | 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  |                 | 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   |                 | P       |
|                | Parts providing earthing continuity, other than parts of a metal frame or enclosure, have adequate resistance to corrosion   |                 | P       |
|                | If of steel, these parts provided with an electroplated coating with a thickness at least 5 µm   |                 | P       |
|                | Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure  |                 | P       |
|                | In 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  |                 | N/A     |

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| Clause         | Requirement + Test  | Result - Remark | Verdict |
| 27.5           | Low resistance of connection between earthing terminal and earthed metal parts  |                 | P       |
|                | This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided 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   |                 | N/A     |
|                | Resistance not exceeding 0,1 $\Omega$ at the specified low-resistance test ( $\Omega$ ) .....   | Max 0,04        | P       |
| 27.6           | The printed conductors of printed circuit boards not used to provide earthing continuity in hand-held appliances.   |                 | N/A     |
|                | They may be used 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   |                 | N/A     |
| <b>28</b>      | <b>SCREWS AND CONNECTIONS</b>   |                 |         |
|                | Compliance is not checked on parts related to motor-compressors if the motor-compressor complies with IEC 60335-2-34 (IEC 60335-2-24)   |                 | 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   |                 | N/A     |

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| Clause         | Requirement + Test   | Result - Remark      | Verdict |
|                | 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) | P       |
| 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:   |                      | —       |
|                | <ul style="list-style-type: none"> <li>30.2.2 is applicable and that carry a current not exceeding 0.5 A</li> </ul>  |                      | N/A     |
|                | <ul style="list-style-type: none"> <li>30.2.3 is applicable and that carry a current not exceeding 0.2 A</li> </ul>  |                      | N/A     |
| 28.3           | Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together  |                      | N/A     |
|                | Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread   |                      | N/A     |
|                | Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer   |                      | P       |
|                | 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,   |                      | P       |
|                | - during user maintenance,   |                      | P       |
|                | - 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  |                      | P       |
| 28.4           | Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity  |                      | N/A     |

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| Clause         | Requirement + Test  | Result - Remark      | Verdict |
|                | This requirement does not apply to screws in the earthing circuit if at least two screws are used, or   |                      | N/A     |
|                | if an alternative earthing circuit is provided  |                      | N/A     |
|                | Rivets for electrical connections or connections providing earthing continuity secured against loosening if the connections are subjected to torsion  |                      | N/A     |
| <b>29</b>      | <b>CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION</b>  |                      |         |
|                | 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   |                      | N/A     |
|                | However, if the distances are affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500V and above are increased by 0.5 mm and the impulse voltage test is not applicable |                      | P       |
|                | 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   |                      | 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  |                      | P       |
|                | A force of 30 N is applied to accessible surfaces  |                      | P       |
| 29.1.1         | Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage   |                      | P       |
|                | The values of table 16 or the impulse voltage test of clause 14 are applicable .....   | (see appended table) | P       |
|                | Clearance at the terminals of tubular sheathed heating elements may be reduced to 1.0 mm if the microenvironment is pollution degree 1   |                      | N/A     |
|                | Lacquered conductors of windings considered to be bare conductors  |                      | P       |
| 29.1.2         | Clearances of supplementary insulation not less than those specified for basic insulation in table 16:   | (see appended table) | P       |
| 29.1.3         | Clearances of reinforced insulation not less than those specified for basic insulation in table 16, using the next higher step for rated impulse voltage .....   | (see appended table) | P       |
|                | For double insulation, with no intermediate conductive part between basic and supplementary insulation, clearances are measured between live parts and the accessible surface, and the insulation system is treated as reinforced insulation |                      | P       |
| 29.1.4         | Clearances for functional insulation are the largest values determined from:   |                      | —       |
|                | - 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  |                      | P       |
|                | the microenvironment is pollution degree 3, or   |                      | N/A     |
|                | the distances can be affected by wear, distortion, movement of the parts or during assembly  |                      | N/A     |
|                | However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited  |                      | P       |
|                | 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 1 mm  |                      | N/A     |

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| 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  |                      | P       |
|                | A force of 30 N is applied to accessible surfaces  |                      | P       |
|                | In a double insulation system, the working voltage for both the basic and supplementary insulation is taken as the working voltage across the complete double insulation system  |                      | P       |

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| Clause         | Requirement + Test  | Result - Remark      | Verdict |
|                | Insulation in refrigeration appliances and ice-makers is in pollution degree 3 and shall have a CTI value of 250 unless the insulation to be protected to pollution by condensation (IEC 60335-2-24)                        |                      | P       |
|                | Not applicable for functional insulation if working voltage < 50 V (IEC 60335-2-24)   |                      | 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) | P       |
|                | Table 2 of IEC 60664-4, as applicable .....   |                      | N/A     |
| 29.2.3         | Creepage distances of reinforced insulation at least double those specified for basic insulation in table 17, or .....  | (see appended table) | P       |
|                | Table 2 of IEC 60664-4, as applicable .....   |                      | N/A     |
| 29.2.4         | Creepage distances of functional insulation not less than specified in table 18 .....   | (see appended table) | P       |
|                | However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 18 ..... |                      | N/A     |
|                | Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited   |                      | P       |
| 29.3           | Supplementary and reinforced insulation have adequate thickness, or a sufficient number of layers, to withstand the electrical stresses   |                      | P       |
|                | Compliance checked:   |                      | —       |
|                | - by measurement, in accordance with 29.3.1, or   |                      | P       |
|                | - by an electric strength test in accordance with 29.3.2, or  |                      | N/A     |

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|----------------|---|---------------------------|---------|
| 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                   |                           | N/A     |
|                | for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, or  |                           | 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 |                           | N/A     |
|                | - as specified in subclause 6.3 of IEC 60664-4 for insulation that is subjected to any periodic voltage having a frequency exceeding 30 kHz   |                           | N/A     |
| 29.3.1         | Supplementary insulation have a thickness of at least 1 mm  |                           | P       |
|                | Reinforced insulation have a thickness of at least 2 mm   |                           | P       |
| 29.3.2         | Each layer of material withstand the electric strength test of 16.3 for supplementary insulation  |                           | P       |
|                | Supplementary insulation consist of at least 2 layers   |                           | P       |
|                | Reinforced insulation consist of at least 3 layers  |                           | P       |
| 29.3.3         | The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by   |                           | N/A     |
|                | the electric strength test of 16.3  |                           | N/A     |
|                | If the temperature rise during the tests of clause 19 does not exceed the value specified in table 3, the test of IEC 60068-2-2 is not carried out  |                           | N/A     |
| 29.3.4         | Thickness of accessible parts of reinforced insulation consisting of a single layer not less than specified in table 19 .....   |                           | N/A     |
| <b>30</b>      | <b>RESISTANCE TO HEAT AND FIRE</b>  |                           |         |
| 30.1           | External parts of non-metallic material,  |                           | P       |
|                | parts supporting live parts, and  |                           | P       |
|                | parts of thermoplastic material providing supplementary or reinforced insulation  |                           | P       |
|                | sufficiently resistant to heat  |                           | P       |
|                | Ball-pressure test according to IEC 60695-10-2  |                           | P       |
|                | External parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C) .....  | (see appended table 30.1) | P       |

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|----------------|--|---------------------------|---------|
| Clause         | Requirement + Test   | Result - Remark           | Verdict |
|                | 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) | P       |
|                | Not applied to parts of motor-compressor if complies with IEC60335-2-34 (IEC 60335-2-24)   |                           | P       |
|                | Accessible parts within the storage compartment 65 °C (IEC 60335-2-24)   |                           | P       |
|                | Note 102: The temperature rises attained during the test of 19.101 are not taken into account. (IEC 60335-2-24)  |                           | —       |
| 30.2           | Parts of non-metallic material resistant to ignition and spread of fire  |                           | P       |
|                | Not applied to parts of motor-compressor if it complies with IEC60335-2-34 with no ignition (IEC 60335-2-24)   |                           | N/A     |
|                | 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   |                           | P       |
|                | 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       |
| 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       |
|                | 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     |

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|----------------|---|---------------------------|---------|
| Clause         | Requirement + Test  | Result - Remark           | Verdict |
| 30.2.2         | Not applicable (IEC 60335-2-24)   |                           | —       |
| 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       |
|                | 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  |                           | P       |
|                | The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 850 °C       |                           | 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  |                           | P       |
|                | 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:   |                           | N/A     |
|                | • 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:   |                           | N/A     |
|                | - 750 °C, for connections carrying a current exceeding 0.2 A during normal operation  |                           | N/A     |
|                | - 650 °C, for other connections   |                           | N/A     |
|                | The glow-wire test is also not carried out on small parts. These parts are to:  |                           | —       |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
|                | - comprise material having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or   |                 | N/A     |
|                | - comprise material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or   |                 | N/A     |
|                | - comply with the needle-flame test of Annex E, or  |                 | N/A     |
|                | - comprise material classified as V-0 or V-1 according to IEC 60695-11-10   |                 | N/A     |
|                | The consequential needle-flame test of Annex E applied to non-metallic parts that encroach within the vertical cylinder placed above the centre of the connection zone and on top of the non-metallic parts supporting current-carrying connections, and parts of non-metallic material within a distance of 3 mm of such connections if these parts are those: |                 | —       |
|                | - parts that withstood the glow-wire test of IEC 60695-2-11 of 750 °C or 650 °C as appropriate, but produce a flame that persist longer than 2 s, or  |                 | N/A     |
|                | - parts that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or   |                 | N/A     |
|                | - small parts, that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or  |                 | N/A     |
|                | - small parts for which the needle-flame test of Annex E was applied, or  |                 | N/A     |
|                | - small parts for which a material classification of V-0 or V-1 was applied   |                 | N/A     |
|                | However, the consequential needle-flame test is not carried out on non-metallic parts, including small parts, within the cylinder that are:   |                 | —       |
|                | - parts having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or   |                 | N/A     |
|                | - parts comprising material classified as V-0 or V-1 according to IEC 60695-11-10, or   |                 | N/A     |
|                | - parts shielded by a flame barrier that meets the needle-flame test of Annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10  |                 | N/A     |
| 30.2.4         | Base material of printed circuit boards subjected to the needle-flame test of Annex E   |                 | N/A     |
|                | Test not applicable to conditions as specified .....:   | V-0             | P       |
| <b>31</b>      | <b>RESISTANCE TO RUSTING</b>  |                 |         |
|                | Relevant ferrous parts adequately protected against rusting   |                 | P       |
|                | Tests specified in part 2 when necessary  |                 | N/A     |

| IEC 60335-2-24 |   |                      |         |
|----------------|---|----------------------|---------|
| Clause         | Requirement + Test  | Result - Remark      | Verdict |
| <b>32</b>      | <b>RADIATION, TOXICITY AND SIMILAR HAZARDS</b>  |                      |         |
|                | Not applicable (IEC 60335-2-24)   |                      | —       |
| <b>A</b>       | <b>ANNEX A (INFORMATIVE)<br/>ROUTINE TESTS</b>  |                      |         |
|                | Description of routine tests to be carried out by the manufacturer  |                      | N/A     |
| <b>AA</b>      | <b>ANNEX AA, (NORMATIVE) LOCKED-ROTOR TEST OF FAN MOTORS<br/>(IEC 60335-2-24)</b>   |                      |         |
|                | The winding of a fan motor does not reach excessive temperatures if the motor locks or fails to start   | (see appended table) | P       |
|                | The motor is supplied at rated voltage according to supply circuit fig. AA.1.   |                      | P       |
|                | Tests as described  |                      | P       |
| <b>B</b>       | <b>ANNEX B (NORMATIVE)<br/>APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE<br/>RECHARGED IN THE APPLIANCE</b>   |                      |         |
|                | The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance   |                      | 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   |                      | 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 |                      | 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                       |                      | 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     |

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|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
|                | -if possible, the appliance is supplied from the supply mains through its battery charger, the battery being initially discharged to such an extent that the appliance cannot operate. The appliance is operated as specified in relevant part 2 |                 | N/A     |
|                | - if the appliance incorporates inductive coupling between two parts that are detachable from each other, the appliance is supplied from the supply mains with the detachable part removed   |                 | N/A     |
| 3.6.2          | Part to be removed in order to discard the battery is not considered to be detachable  |                 | N/A     |
| 5.B.101        | Appliances supplied from the supply mains tested as specified for motor-operated appliances  |                 | N/A     |
| 7.1            | Battery compartment for batteries intended to be replaced by the user, marked with battery voltage (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   |                 | N/A     |
|                | use only with <model designation> supply unit ...:   |                 | N/A     |
| 7.6            | Additional symbols   |                 | N/A     |
| 7.12           | The instructions give information regarding charging   |                 | N/A     |
|                | Instructions for appliances incorporating batteries intended to be replaced by the user include required information   |                 | N/A     |
|                | 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     |
|                | 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:   |                 | —       |
|                | WARNING: For the purposes of recharging the battery, only use the detachable supply unit provided with this appliance  |                 | N/A     |

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|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
|                | If the symbol for detachable supply unit is used, its meaning is explained  |                 | 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   |                 | 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     |
| 11.8           | Temperature rise of the battery surface does not exceed the limit in the battery manufacturer's specification; measured (K); limit (K).....:  |                 | 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  |                 | 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     |

| IEC 60335-2-24 |   |                 |         |
|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
| 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     |
| <b>C</b>       | <b>ANNEX C (NORMATIVE)<br/>AGEING TEST ON MOTORS</b>  |                 |         |
|                | 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 60335-2-24)   |                 | N/A     |
| <b>CC</b>      | <b>ANNEX CC (NORMATIVE)<br/>NON-SPARKING "N" ELECTRICAL APPARATUS AND TEST CONDITIONS FOR "DC" DEVICES (IEC 60335-2-24)</b>   |                 |         |
| 7              | Requirements for non-incendive components   |                 | —       |
|                | Clause 7 is applicable.   |                 | N/A     |
| 8              | Requirements for hermetically sealed devices  |                 | —       |
|                | Clause 8 is applicable.   |                 | N/A     |
| 9              | Requirements for sealed devices   |                 | —       |
|                | All of the subclauses of Clause 9 are applicable, except 9.1, which is replaced by the following.   |                 | N/A     |
| 9.1            | Non-metallic materials  |                 | —       |
|                | Seals are tested using 11.2.  |                 | N/A     |
| 10             | Requirements for restricted-breathing enclosures  |                 | —       |
|                | Clause 10 is applicable.  |                 | N/A     |
| 15.5.3.1       | General   |                 | —       |
|                | Group IIA: (55 ± 0,5) % hydrogen/air at atmospheric pressure; or  |                 | N/A     |
|                | Group IIA: (6,5 ± 0,5) % ethylene/air at atmospheric pressure.  |                 | N/A     |

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|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
| <b>D</b>       | <b>ANNEX D (NORMATIVE)<br/>THERMAL MOTOR PROTECTORS</b>  |                 |         |
|                | 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 60335-2-24)  |                 | N/A     |
| <b>E</b>       | <b>ANNEX E (NORMATIVE)<br/>NEEDLE-FLAME TEST</b>   |                 |         |
|                | 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   |                 | —       |
| 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     |
| <b>EE</b>      | <b>TEST FOR MATERIAL ENCASING AND IN CONTACT WITH THERMAL INSULATION (IEC 60335-2-24)</b>  |                 |         |
|                | When testing a material to this annex as required by 22.117.   |                 | N/A     |
|                | Tests as described   |                 | N/A     |
| <b>F</b>       | <b>ANNEX F (NORMATIVE)<br/>CAPACITORS</b>  |                 |         |
|                | 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     |

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|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
| 1.5.4          | This subclause is applicable   |                 | N/A     |
| 1.6            | Marking  |                 | —       |
|                | Items a) and b) are applicable   |                 | N/A     |
| 3.4            | Approval testing   |                 | —       |
| 3.4.3.2        | Table 3 is applicable as described   |                 | N/A     |
| 4.1            | Visual examination and check of dimensions   |                 | N/A     |
|                | This subclause is applicable   |                 | N/A     |
| 4.2            | Electrical tests   |                 | —       |
| 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     |
|                | 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   |                 | N/A     |
| <b>G</b>       | <b>ANNEX G (NORMATIVE)<br/>SAFETY ISOLATING TRANSFORMERS</b>                                   |                 |         |
|                | 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     |

| IEC 60335-2-24   |   |                 |         |
|------------------|---|-----------------|---------|
| Clause           | Requirement + Test  | Result - Remark | Verdict |
|                  | -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  |                 | N/A     |
|                  | 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     |
|                  | 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     |
| <b>H</b>         | <b>ANNEX H (NORMATIVE)<br/>SWITCHES</b>   |                 |         |
|                  | 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 trade mark and the type reference   |                 | N/A     |
| 13               | Mechanism   |                 | —       |
|                  | The tests may be carried out on a separate sample   |                 | N/A     |
| 15               | Insulation resistance and dielectric strength   |                 | —       |
| 15.1             | Not applicable  |                 | N/A     |
| 15.2             | Not applicable  |                 | N/A     |
| 15.3             | Applicable for full disconnection and micro-disconnection   |                 | N/A     |
| 17               | Endurance   |                 | —       |

| IEC 60335-2-24 |  |                 |         |
|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
|                | Compliance is checked on three separate appliances or switches   |                 | N/A     |
|                | For 17.2.4.4, the number of cycles declared according to 7.1.4 is 10 000, unless   |                 | N/A     |
|                | otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335 .....  |                 | N/A     |
|                | Switches for operation under no load and which can be operated only by a tool, and   |                 | N/A     |
|                | switches operated by hand that are interlocked so that they cannot be operated under load,   |                 | N/A     |
|                | are not subjected to the tests   |                 | N/A     |
|                | However, switches without this interlock are subjected to the test of 17.2.4.4 for 100 cycles of operation   |                 | N/A     |
|                | Subclauses 17.2.2 and 17.2.5.2 not applicable  |                 | N/A     |
|                | The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in IEC 60335-1   |                 | N/A     |
|                | The temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1 (K).....                              |                 | N/A     |
| 20             | Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies  |                 | —       |
|                | Clause 20 is applicable to clearances across full disconnection and micro-disconnection  |                 | N/A     |
|                | It is also applicable to creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in Table 24                |                 | N/A     |
| <b>I</b>       | <b>ANNEX I (NORMATIVE)<br/>MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE</b>  |                 |         |
|                | The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance:      |                 | N/A     |
| 8              | Protection against access to live parts  |                 | —       |
| 8.1            | Metal parts of the motor are considered to be bare live parts  |                 | N/A     |
| 11             | Heating  |                 | —       |
| 11.3           | 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     |

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|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
| 16             | Leakage current and electric strength  |                 | N/A     |
| 16.3           | Insulation between live parts of the motor and its other metal parts is not subjected to the test  |                 | N/A     |
| 19             | Abnormal operation   |                 | —       |
| 19.1           | The tests of 19.7 to 19.9 are not carried out  |                 | N/A     |
| 19.1.101       | Appliance operated at rated voltage with each of the following fault conditions:   |                 | N/A     |
|                | - short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit   |                 | N/A     |
|                | - short circuit of each diode of the rectifier   |                 | N/A     |
|                | - open circuit of the supply to the motor  |                 | N/A     |
|                | - open circuit of any parallel resistor, the motor being in operation  |                 | N/A     |
|                | Only one fault simulated at a time, the tests carried out consecutively  |                 | N/A     |
| 22             | Construction   |                 | —       |
| 22.1.101       | For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation |                 | N/A     |
|                | Compliance checked by the tests specified for double and reinforced insulation   |                 | N/A     |
| <b>J</b>       | <b>ANNEX J (NORMATIVE)<br/>COATED PRINTED CIRCUIT BOARDS</b>   |                 |         |
|                | Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications:  |                 | N/A     |
| 5.7            | Conditioning of the test specimens   |                 | —       |
|                | When production samples are used, three samples of the printed circuit board are tested  |                 | N/A     |
| 5.7.1          | Cold   |                 | —       |
|                | The test is carried out at -25 °C  |                 | N/A     |
| 5.7.3          | Rapid change of temperature  |                 | —       |
|                | Severity 1 is specified  |                 | N/A     |
| 5.9            | Additional tests   |                 | —       |
|                | This subclause is not applicable   |                 | N/A     |
| <b>K</b>       | <b>ANNEX K (NORMATIVE)<br/>OVERVOLTAGE CATEGORIES</b>  |                 |         |
|                | The information on overvoltage categories is extracted from IEC 60664-1  |                 | P       |
|                | Overvoltage category is a numeral defining a transient overvoltage condition   |                 | P       |

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|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
|                | Equipment of overvoltage category IV is for use at the origin of the installation  |                 | N/A     |
|                | Equipment of overvoltage category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements |                 | N/A     |
|                | Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation  |                 | P       |
|                | If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies   |                 | N/A     |
|                | Equipment of overvoltage category I is equipment for connection to circuits in which measures are taken to limit transient overvoltages to an appropriate low level                    |                 | N/A     |
| <b>L</b>       | <b>ANNEX L (INFORMATIVE)<br/>GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES</b>   |                 |         |
|                | Information for the determination of clearances and creepage distances   |                 | P       |
| <b>M</b>       | <b>ANNEX M (NORMATIVE)<br/>POLLUTION DEGREE</b>  |                 |         |
|                | 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   |                 | P       |
|                | Minimum clearances specified where pollution may be present in the microenvironment  |                 | P       |
|                | Degrees of pollution in the microenvironment   |                 | —       |
|                | For evaluating creepage distances, the following degrees of pollution in the microenvironment are established:   |                 | P       |
|                | - pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence  |                 | N/A     |
|                | - pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected                                 |                 | N/A     |

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|----------------|---|-----------------|---------|
| Clause         | Requirement + Test  | Result - Remark | Verdict |
|                | - 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/A     |
| <b>N</b>       | <b>ANNEX N (NORMATIVE)<br/>PROOF TRACKING TEST</b>  |                 |         |
|                | The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:   |                 | —       |
| 7              | Test apparatus  |                 | —       |
| 7.3            | Test solutions  |                 | —       |
|                | Test solution A is used   |                 | P       |
| 10             | Determination of proof tracking index (PTI)   |                 | —       |
| 10.1           | Procedure   |                 | —       |
|                | The proof voltage is 100V, 175V, 400V or 600V ...:  | 250V            | P       |
|                | The test is carried out on five specimens   |                 | P       |
|                | In case of doubt, additional test with proof voltage reduced by 25V, the number of drops increased to 100   |                 | N/A     |
| 10.2           | Report  |                 | —       |
|                | The report states if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V  |                 | N/A     |
| <b>O</b>       | <b>ANNEX O (INFORMATIVE)<br/>SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30</b>   |                 |         |
|                | Description of tests for determination of resistance to heat and fire   |                 | P       |
| <b>P</b>       | <b>ANNEX P (INFORMATIVE)<br/>GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN TROPICAL CLIMATES</b>  |                 |         |
|                | 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   |                 | —       |
|                | 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 |                 | —       |
| 5.7            | The ambient temperature for the tests of clauses 10, 11 and 13 is 43 +/-1 °C (IEC 60335-2-24)   |                 | N/A     |
| 7.1            | The appliance marked with symbol IEC 60417-6332   |                 | N/A     |

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|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
| 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 tropical climate, but may also be used in other countries   |                 | N/A     |
|                | If symbol IEC 60417-6332 is used, its meaning is explained   |                 | N/A     |
| 11.8           | The values of Table 3 are reduced by 18 K (IEC 60335-2-24)   |                 | N/A     |
| 13.2           | The leakage current for class I appliances not exceeding 0.5 mA  |                 | N/A     |
| 15.3           | The value of t is 37 °C  |                 | N/A     |
| 16.2           | The leakage current for class I appliances not exceeding 0.5 mA (mA):  |                 | N/A     |
| 19.13          | The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3  |                 | N/A     |
| <b>Q</b>       | <b>ANNEX Q (INFORMATIVE)<br/>SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS</b>   |                 |         |
|                | Description of tests for appliances incorporating electronic circuits  |                 | P       |
| <b>R</b>       | <b>ANNEX R (NORMATIVE)<br/>SOFTWARE EVALUATION</b>   |                 |         |
|                | 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:  |                 | —       |

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|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
|                | - single channel with periodic self-test and monitoring  |                 | N/A     |
|                | - dual channel (homogenous) with comparison  |                 | N/A     |
|                | - dual channel (diverse) with comparison   |                 | N/A     |
|                | Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 have one of the following structures:  |                 | —       |
|                | - single channel with functional test  |                 | N/A     |
|                | - single channel with periodic self-test   |                 | N/A     |
|                | - dual channel without comparison  |                 | N/A     |
| R.2.2          | Measures to control faults/errors  |                 | —       |
| R.2.2.1        | When redundant memory with comparison is provided on two areas of the same component, the data in one area is stored in a different format from that in the other area   |                 | N/A     |
| R.2.2.2        | Programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.2 and that use dual channel structures with comparison, have additional fault/error detection means for any fault/errors not detected by the comparison                               |                 | N/A     |
| R.2.2.3        | For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, means are provided for the recognition and control of errors in transmissions to external safety-related data paths   |                 | N/A     |
| R.2.2.4        | For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the programmable electronic circuits incorporate measures to address the fault/errors in safety-related segments and data indicated in table R.1 and R.2 as appropriate |                 | N/A     |
| R.2.2.5        | For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, detection of a fault/error occur before compliance with clause 19 is impaired   |                 | N/A     |
| R.2.2.6        | The software is referenced to relevant parts of the operating sequence and the associated hardware functions   |                 | N/A     |
| R.2.2.7        | Labels used for memory locations are unique  |                 | N/A     |
| R.2.2.8        | The software is protected from user alteration of safety-related segments and data   |                 | N/A     |

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|----------------|---|-------------------|---------|
| Clause         | Requirement + Test  | Result - Remark   | Verdict |
| R.2.2.9        | Software and safety-related hardware under its control is initialized and terminates before compliance with clause 19 is impaired   |                   | N/A     |
| R.3            | Measures to avoid errors  |                   | —       |
| R.3.1          | General   |                   | —       |
|                | For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the following measures to avoid systematic fault in the software are applied   |                   | —       |
|                | Software that incorporates measures used to control the fault/error conditions specified in table R.2 is inherently acceptable for software required to control the fault/error conditions specified in table R.1   |                   | N/A     |
| R.3.2          | Specification   |                   | —       |
| R.3.2.1        | Software safety requirements:   | Software Id:      | N/A     |
|                | The specification of the software safety requirements includes the descriptions listed  |                   | N/A     |
| R.3.2.2        | Software architecture   |                   | —       |
| R.3.2.2.1      | The specification of the software architecture includes the aspects listed<br>- techniques and measures to control software faults/errors (refer to R.2.2);<br>- interactions between hardware and software;<br>- partitioning into modules and their allocation to the specified safety functions;<br>- hierarchy and call structure of the modules (control flow);<br>- interrupt handling;<br>- data flow and restrictions on data access;<br>- architecture and storage of data;<br>- 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   |                   | —       |

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|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
|                | 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 <sup>e</sup> – GENERAL FAULT/ERROR CONDITIONS        |   |   |  |  |                                     |         |
|--|---|---|--|--|-------------------------------------|---------|
| Component <sup>a</sup>   | Fault/error   | Acceptable measures <sup>b, c</sup>   | Definitions  | Document reference for applied measure | Document reference for applied test | Verdict |
| 1 CPU<br>1.1<br>Registers                                      | Stuck at  | Functional test, or periodic self-test using either: <ul style="list-style-type: none"> <li>- static memory test, or</li> <li>- word protection with single bit redundancy</li> </ul> | H.2.16.5<br>H.2.16.6<br>H.2.19.6<br>H.2.19.8.2     |  |                                     | N/A     |
| 1.2 VOID   |   |   |  |  |                                     | N/A     |
| 1.3<br>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<br>H.2.16.6<br>H.2.18.10.4<br>H.2.18.10.2 |  |                                     | N/A     |
| 2<br>Interrupt handling and execution                          | No interrupt or too frequent interrupt  | Functional test, or time-slot monitoring  | H.2.16.5<br>H.2.18.10.4                            |  |                                     | N/A     |
| 3<br>Clock   | Wrong frequency (for quartz synchronized clock: harmonics/sub-harmonics only) | Frequency monitoring, or time slot monitoring   | H.2.18.10.1<br>H.2.18.10.4                         |  |                                     | N/A     |
| 4. Memory<br>4.1<br>Invariable memory                          | All single bit faults   | Periodic modified checksum, or multiple checksum, or word protection with single bit redundancy   | H.2.19.3.1<br>H.2.19.3.2<br>H.2.19.8.2             |  |                                     | N/A     |
| 4.2<br>Variable memory   | DC fault  | Periodic static memory test, or word protection with single bit redundancy  | H.2.19.6<br>H.2.19.8.2                             |  |                                     | N/A     |
| 4.3<br>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     |

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|----------------|--------------------|-----------------|---------|
| Clause         | Requirement + Test | Result - Remark | Verdict |

| TABLE R.1 <sup>e</sup> – GENERAL FAULT/ERROR CONDITIONS |   |   |   |  |                                     |         |
|---|---|---|---|--|-------------------------------------|---------|
| Component <sup>a</sup>                                  | Fault/error                               | Acceptable measures <sup>b, c</sup>   | Definitions   | Document reference for applied measure | Document reference for applied test | Verdict |
| 5<br>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<br>Addressing                                       | Wrong address                             | Word protection with single bit redundancy including the address  | H.2.19.8.2  |  |                                     | N/A     |
| 6<br>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<br>H.2.19.4.1<br>H.2.18.2.2<br>H.2.18.14   |  |                                     | N/A     |
| 6.1 VOID  |   |   |   |  |                                     | N/A     |
| 6.2 VOID  |   |   |   |  |                                     | N/A     |
| 6.3<br>Timing   | Wrong point in time<br><br>Wrong sequence | Time-slot monitoring, or scheduled transmission<br>Time-slot and logical monitoring, or comparison of redundant communication channels by either:<br>- reciprocal comparison<br>- independent hardware comparator<br>Logical monitoring, or time-slot monitoring, or Scheduled transmission | H.2.18.10.4<br>H.2.18.18<br>H.2.18.10.3<br><br>H.2.18.15<br>H.2.18.3<br><br>H.2.18.10.2<br>H.2.18.10.4<br>H.2.18.18 |  |                                     | N/A     |
| 7<br>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<br>Analog I/O<br>7.2.1<br>A/D and D/A-converter     | Fault conditions specified in 19.11.2     | Plausibility check  | H.2.18.13   |  |                                     | N/A     |
| 7.2.2<br>Analog multiplexer                             | Wrong addressing                          | Plausibility check  | H.2.18.13   |  |                                     | N/A     |
| 8 VOID  |   |   |   |  |                                     | N/A     |

| IEC 60335-2-24 |                    |                 |         |
|----------------|--------------------|-----------------|---------|
| Clause         | Requirement + Test | Result - Remark | Verdict |

**TABLE R.1<sup>e</sup> – GENERAL FAULT/ERROR CONDITIONS**

| Component <sup>a</sup>                                       | Fault/error  | Acceptable measures <sup>b,c</sup> | Definitions | Document reference for applied measure | Document reference for applied test | Verdict |
|--|--|------------------------------------|-------------|--|-------------------------------------|---------|
| 9<br>Custom chips<br><sup>d</sup> e.g. ASIC, GAL, gate array | Any output outside the static and dynamic functional specification | Periodic self-test                 | H.2.16.6    |  |                                     | N/A     |

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.

| <b>S</b> | <b>ANNEX S (NORMATIVE)<br/>BATTERY OPERATED APPLIANCES POWERED BY BATTERIES THAT ARE NON-RECHARGEABLE OR NOT RECHARGED IN THE APPLIANCE</b>                         |  |     |
|----------|---|--|-----|
|          | 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, trade mark or identification mark of the manufacturer or responsible vendor .....   |  | N/A |
|          | – model or type reference .....   |  | N/A |

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|----------------|--|-----------------|---------|
| 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     |

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|----------------|---|-----------------|---------|
| 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     |
| <b>T</b>       | <b>ANNEX T (NORMATIVE)<br/>UV-C RADIATION EFFECT ON NON-METALLIC MATERIALS</b>  |                 |         |
|                | 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     |
|                | 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/m <sup>2</sup> 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     |

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|----------------|--|-----------------|---------|
| Clause         | Requirement + Test   | Result - Remark | Verdict |
| 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 is 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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|----------------|--------------------|-----------------|---------|
| Clause         | Requirement + Test | Result - Remark | Verdict |

| 10.1                   | TABLE: Power input deviation |                |            |                     |        | N/A |
|------------------------|------------------------------|----------------|------------|---------------------|--------|-----|
| Input deviation of/at: | P rated (W)                  | P measured (W) | $\Delta P$ | Required $\Delta P$ | Remark |     |
|                        |                              |                |            |                     |        |     |
|                        |                              |                |            |                     |        |     |

Supplementary information:

| 10.2                     | TABLE: Current deviation |                |            |                     |                  | P |
|--------------------------|--------------------------|----------------|------------|---------------------|------------------|---|
| Current deviation of/at: | I rated (A)              | I measured (A) | $\Delta I$ | Required $\Delta I$ | Remark           |   |
| ZSW-ZB14                 | 0,7                      | 0,68           | -2,9%      | +20%                | Supplied at 230V |   |
| ZSW-ZB15                 | 0,84                     | 0,83           | -1,2%      | +20%                | Supplied at 230V |   |

Supplementary information:

| 11.8                        | TABLE: Heating test ZSW-ZB14                   |   |  | P |
|-----------------------------|--|---|--|---|
|                             | Test voltage (V) .....                         | 254,4V                                      |  | — |
|                             | Ambient (°C) .....                             | 38,0°C                                      |  | — |
| Thermocouple locations:     | Max. temperature rise measured, $\Delta T$ (K) | Max. temperature rise limit, $\Delta T$ (K) |  |   |
| Supply cord                 | 17,2   | 50-7=43                                     |  |   |
| Internal wire               | 10,1   | T80-25-7=48                                 |  |   |
| Transformer winding         | 28,3   | 80-7=73(Class E)                            |  |   |
| Transformer bobbin          | 24,2   | For Cl.30                                   |  |   |
| X2 Capacitor                | 23,9   | T100-25-7=68                                |  |   |
| Relay                       | 15,4   | T85-25-7=53                                 |  |   |
| PCB board                   | 21,2   | 120-7=113                                   |  |   |
| PCB box                     | 21,4   | For Cl.30                                   |  |   |
| Compressor enclosure        | 71,8°C   | 150°C                                       |  |   |
| DC fan motor                | 10,9   | 80-7=73(Class E)                            |  |   |
| Solenoid Valve(FDF2A-02C)   | 8,8  | 80-7=73(Class E)                            |  |   |
| Solenoid Valve(FDF-2A)      | 8,7  | 80-7=73(Class E)                            |  |   |
| Water pump                  | 5,5  | 80-7=73(Class E)                            |  |   |
| Knob                        | 2,2  | 60-7=53                                     |  |   |
| Ambient of the micro switch | 1,9  | T125-7-25=93                                |  |   |
| Y capacitor                 | 15,0   | T85-25-7=53                                 |  |   |
| VDR                         | 17,0   | T85-25-7=53                                 |  |   |

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|----------------|--------------------|-----------------|---------|
| Clause         | Requirement + Test | Result - Remark | Verdict |

|                            |     |         |
|----------------------------|-----|---------|
| Test corner                | 9,4 | 65-7=58 |
| Supplementary information: |     |         |

|                                     |   |               |                |                     |                         |          |
|-------------------------------------|---|---------------|----------------|---------------------|-------------------------|----------|
| <b>11.8</b>                         | <b>TABLE: Heating test, resistance method</b> |               |                |                     |                         | <b>P</b> |
|                                     | <b>Test voltage (V)</b> .....                 | 254,4V        |                |                     | —                       |          |
|                                     | <b>Ambient, t1 (°C)</b> .....                 | 38,0          |                |                     | —                       |          |
|                                     | <b>Ambient, t2 (°C)</b> .....                 | 38,0          |                |                     | —                       |          |
| <b>Temperature rise of winding:</b> | <b>R1 (Ω)</b>                                 | <b>R2 (Ω)</b> | <b>Δ T (K)</b> | <b>Max. Δ T (K)</b> | <b>Insulation class</b> |          |
| Synchronous motor                   | 10367   | 12340         | 51,9           | 90                  | Class E                 |          |
| Supplementary information:          |   |               |                |                     |                         |          |

|                                |  |        |   |          |
|--------------------------------|--|--------|---|----------|
| <b>11.8</b>                    | <b>TABLE: Heating test ZSW-ZB15</b>            |        |   | <b>P</b> |
|                                | <b>Test voltage (V)</b> .....                  | 254,4V |   | —        |
|                                | <b>Ambient (°C)</b> .....                      | 38,0°C |   | —        |
| <b>Thermocouple locations:</b> | <b>Max. temperature rise measured, Δ T (K)</b> |        | <b>Max. temperature rise limit, Δ T (K)</b> |          |
| Supply cord                    | 18,3   |        | 50-7=43                                     |          |
| Internal wire                  | 10,8   |        | T80-25-7=48                                 |          |
| Transformer winding            | 28,5   |        | 80-7=73(Class E)                            |          |
| Transformer bobbin             | 24,9   |        | For Cl.30                                   |          |
| X2 Capacitor                   | 24,8   |        | T100-25-7=68                                |          |
| Relay                          | 15,8   |        | T85-25-7=53                                 |          |
| PCB board                      | 21,4   |        | 120-7=113                                   |          |
| PCB box                        | 22,1   |        | For Cl.30                                   |          |
| Compressor enclosure           | 73,2°C   |        | 150°C                                       |          |
| DC fan motor                   | 12,1   |        | 80-7=73(Class E)                            |          |
| Solenoid Valve(FDF2A-02C)      | 8,9  |        | 80-7=73(Class E)                            |          |
| Solenoid Valve(FDF-2A)         | 8,9  |        | 80-7=73(Class E)                            |          |
| Water pump                     | 6,4  |        | 80-7=73(Class E)                            |          |
| Suction pump Motor             | 7,1  |        | 80-7=73(Class E)                            |          |
| Control panel                  | 3,8  |        | 60-7=53                                     |          |
| Ambient of the micro switch    | 2,3  |        | T125-7-25=93                                |          |
| Y capacitor                    | 15,2   |        | T85-25-7=53                                 |          |
| VDR                            | 17,9   |        | T85-25-7=53                                 |          |
| Test corner                    | 9,7  |        | 65-7=58                                     |          |

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|----------------|--------------------|-----------------|---------|
| Clause         | Requirement + Test | Result - Remark | Verdict |

Supplementary information:

| 11.8   | TABLE: Heating test, resistance method |        |        |         |              | P                |
|--|--|--------|--------|---------|--------------|------------------|
|  | Test voltage (V) .....                 |        |        | 254,4V  |              | —                |
|  | Ambient, t1 (°C).....                  |        |        | 38,2    |              | —                |
|  | Ambient, t2 (°C).....                  |        |        | 38,5    |              | —                |
| Temperature rise of winding:                             |  | R1 (Ω) | R2 (Ω) | Δ T (K) | Max. Δ T (K) | Insulation class |
| Synchronous motor (49TYJ / Ningbo Jiuling Motor Co.,Ltd) |  | 10238  | 12189  | 50,6    | 90           | Class E          |
| Supplementary information:                               |  |        |        |         |              |                  |

| 13.2   | TABLE: Leakage current  |        |                     | P      |
|--|---|--------|---------------------|--------|
|  | Heating appliances: 1.15 x rated input (W) .. :                       |        |                     | —      |
|  | Motor-operated and combined appliances: 1.06 x rated voltage (V) .. : |        |                     | 254,4V |
| Leakage current between:                     |   | I (mA) | Max. allowed I (mA) |        |
| L/N and earthed metal parts                  |   | 0,16   | 0,75                |        |
| L/N and unearthed metal parts                |   | 0,02   | 0,35 peak           |        |
| L/N and Switch/knob/handle/plastic enclosure |   | 0,02   | 0,35 peak           |        |
| Supplementary information:                   |   |        |                     |        |

| 13.3  | TABLE: Dielectric strength |                            |                                | P |
|---|----------------------------|----------------------------|--------------------------------|---|
| Test voltage applied between:   |                            | Test potential applied (V) | Breakdown / flashover (Yes/No) |   |
| L/N and earthed metal parts   |                            | 1000                       | No                             |   |
| Internal wire and enclosure (with metal foil or ungrounded metal parts) |                            | 1750                       | No                             |   |
| L/N – Switch/knob/handle/plastic enclosure                              |                            | 3000                       | No                             |   |
| Supplementary information:  |                            |                            |                                |   |

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

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|----------------|--------------------|-----------------|---------|
| Clause         | Requirement + Test | Result - Remark | Verdict |

| 16.2   | TABLE: Leakage current  |               | P                          |
|--|---|---------------|----------------------------|
|  | Single phase appliances: 1.06 x rated voltage (V) .....                     | 254,4V        | —                          |
|  | Three phase appliances 1.06 x rated voltage divided by $\sqrt{3}$ (V) ..... | —             | —                          |
| <b>Leakage current between:</b>              |   | <b>I (mA)</b> | <b>Max. allowed I (mA)</b> |
| L/N and earthed metal parts                  |   | 0,23          | 0,75                       |
| L/N and unearthed metal parts                |   | 0,08          | 0,25                       |
| L/N and Switch/knob/handle/plastic enclosure |   | 0,03          | 0,25                       |
| Supplementary information:                   |   |               |                            |

| 16.3  | TABLE: Dielectric strength |                                   | P                                     |
|---|----------------------------|-----------------------------------|---------------------------------------|
| <b>Test voltage applied between:</b>                                    |                            | <b>Test potential applied (V)</b> | <b>Breakdown / flashover (Yes/No)</b> |
| L/N and earthed metal parts   |                            | 1250                              | No                                    |
| Internal wire and enclosure (with metal foil or ungrounded metal parts) |                            | 1750                              | No                                    |
| L/N – Switch/knob/handle/plastic enclosure                              |                            | 3000                              | No                                    |
| Supplementary information:  |                            |                                   |                                       |

| 17                             | TABLE: Overload protection ZSW-ZB14 |  | P   |
|--------------------------------|-------------------------------------|--|---|
| <b>Thermocouple locations:</b> |                                     | <b>Max. temperature rise measured, <math>\Delta T</math> (K)</b> | <b>Max. temperature rise limit, <math>\Delta T</math> (K)</b> |
| Insulation of Conductor        |                                     | 33,0   | 105(Class E)  |
| Winding of Primary             |                                     | 83,1   | 165   |
| Winding of Secondary           |                                     | 80,7   | 165   |
| Supplementary information:     |                                     |  |   |

| 17                             | TABLE: Overload protection ZSW-ZB15 |  | P   |
|--------------------------------|-------------------------------------|--|---|
| <b>Thermocouple locations:</b> |                                     | <b>Max. temperature rise measured, <math>\Delta T</math> (K)</b> | <b>Max. temperature rise limit, <math>\Delta T</math> (K)</b> |
| Insulation of Conductor        |                                     | 33,8   | 105(Class E)  |
| Winding of Primary             |                                     | 84,3   | 165   |
| Winding of Secondary           |                                     | 83,3   | 165   |
| Supplementary information:     |                                     |  |   |

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|----------------|--------------------|-----------------|---------|
| Clause         | Requirement + Test | Result - Remark | Verdict |

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

|                                |  |               |               |                |               |                    |
|--------------------------------|--|---------------|---------------|----------------|---------------|--------------------|
| <b>19.7</b>                    | <b>TABLE: Abnormal operation, locked rotor/moving parts ZSW-ZB14</b> |               |               |                |               | P                  |
|                                | <b>Test voltage (V)</b> .....  |               |               | 240V           |               | —                  |
|                                | <b>Ambient, t1 (°C)</b> .....  |               |               | 20,0           |               | —                  |
|                                | <b>Ambient, t2 (°C)</b> .....  |               |               | 20,0           |               | —                  |
| <b>Temperature of winding:</b> |  | <b>R1 (Ω)</b> | <b>R2 (Ω)</b> | <b>Δ T (K)</b> | <b>T (°C)</b> | <b>Max. T (°C)</b> |
| DC fan motor                   |  | —             | —             | —              | 52,9          | 165                |
| Solenoid Valve(FDF2A-02C)      |  | —             | —             | —              | 51,1          | 165                |
| Solenoid Valve(FDF-2A)         |  | —             | —             | —              | 52,0          | 165                |
| Water pump                     |  | —             | —             | —              | 51,7          | 165                |
| Supplementary information:     |  |               |               |                |               |                    |

|                                |  |               |               |                |               |                    |
|--------------------------------|--|---------------|---------------|----------------|---------------|--------------------|
| <b>19.7</b>                    | <b>TABLE: Abnormal operation, locked rotor/moving parts ZSW-ZB15</b> |               |               |                |               | P                  |
|                                | <b>Test voltage (V)</b> .....  |               |               | 240V           |               | —                  |
|                                | <b>Ambient, t1 (°C)</b> .....  |               |               | 20,0           |               | —                  |
|                                | <b>Ambient, t2 (°C)</b> .....  |               |               | 20,0           |               | —                  |
| <b>Temperature of winding:</b> |  | <b>R1 (Ω)</b> | <b>R2 (Ω)</b> | <b>Δ T (K)</b> | <b>T (°C)</b> | <b>Max. T (°C)</b> |
| DC fan motor                   |  | —             | —             | —              | 53,1          | 165                |
| Solenoid Valve(FDF2A-02C)      |  | —             | —             | —              | 52,9          | 165                |
| Solenoid Valve(FDF-2A)         |  | —             | —             | —              | 52,3          | 165                |
| Water pump                     |  | —             | —             | —              | 51,6          | 165                |
| Suction pump Motor             |  | —             | —             | —              | 51,9          | 165                |
| Supplementary information:     |  |               |               |                |               |                    |

|             |  |  |  |  |  |     |
|-------------|--|--|--|--|--|-----|
| <b>19.9</b> | <b>TABLE: Abnormal operation, running overload</b> |  |  |  |  | N/A |
|-------------|--|--|--|--|--|-----|

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|----------------|--------------------|-----------------|---------|
| Clause         | Requirement + Test | Result - Remark | Verdict |

|                                |                               |               |                |               |                    |   |
|--------------------------------|-------------------------------|---------------|----------------|---------------|--------------------|---|
|                                | <b>Test voltage (V)</b> ..... |               |                |               |                    | — |
|                                | <b>Ambient, t1 (°C)</b> ..... |               |                |               |                    | — |
|                                | <b>Ambient, t2 (°C)</b> ..... |               |                |               |                    | — |
| <b>Temperature of winding:</b> | <b>R1 (Ω)</b>                 | <b>R2 (Ω)</b> | <b>Δ T (K)</b> | <b>T (°C)</b> | <b>Max. T (°C)</b> |   |
|                                |                               |               |                |               |                    |   |
|                                |                               |               |                |               |                    |   |
|                                |                               |               |                |               |                    |   |
| Supplementary information:     |                               |               |                |               |                    |   |

| 19.11.3/4 Abnormal operation conditions  |                                  |                          |                 |                        |                        |             | P            |
|--|----------------------------------|--------------------------|-----------------|------------------------|------------------------|-------------|--------------|
| Operational characteristics  |                                  |                          | YES/NO          | Operational conditions |                        |             |              |
| Are there electronic circuits to control the appliance operation?                          |                                  |                          | Yes             | Ref. to Cl.19.11.2     |                        |             |              |
| Are there “off” or “stand-by” position?  |                                  |                          | Yes             | Manual operation       |                        |             |              |
| The unintended operation of the appliance results in dangerous malfunction?                |                                  |                          | No              | NA                     |                        |             |              |
| Sub-clause   | Operating conditions description | Test results description | PEC description | EMP 19.11.4            | Software type required | 19.11.3 PEC | Final result |
| 19.7   | Refer to Cl.19,7                 | No hazard                | N/A             | N/A                    | N/A                    | N/A         | P            |
| 19.11.2  | Refer to Cl.19.11.2              | No hazard                | N/A             | N/A                    | N/A                    | N/A         | P            |
| 19.11.4.8  | Refer to Cl.19.11.4              | No hazard                | N/A             | P                      | N/A                    | N/A         | P            |
| 19.14  | Refer to Cl.19.14                | No hazard                | N/A             | N/A                    | N/A                    | N/A         | P            |
| 19.102   | Refer to Cl.19.102               | No hazard                | N/A             | N/A                    | N/A                    | N/A         | P            |
| This part of the table is not applicable as the electronic circuits have no PEC functions. |                                  |                          |                 |                        |                        |             |              |

| 19.13 TABLE: Abnormal operation, temperature rises ZSW-ZB14 |  |   | P                                    |
|---|--|---|--------------------------------------|
| Thermocouple locations:                                     |  | Max. temperature rise measured, Δ T (K) | Max. temperature rise limit, Δ T (K) |
| 19.7  |  |   |                                      |
| Test corner   |  | 10,1                                    | 150                                  |
| Supply cord   |  | 18,9                                    | 150                                  |

| IEC 60335-2-24             |                    |                 |           |
|----------------------------|--------------------|-----------------|-----------|
| Clause                     | Requirement + Test | Result - Remark | Verdict   |
| Enclosure of main body     |                    | 13,3            | For Cl.30 |
| 19.102                     |                    |                 |           |
| Test corner                |                    | 11,3            | 150       |
| Supply cord                |                    | 20,3            | 150       |
| Supplementary information: |                    |                 |           |

| 19.13                      | TABLE: Abnormal operation, temperature rises ZSW-ZB15 |   | P |
|----------------------------|---|---|---|
| Thermocouple locations:    | Max. temperature rise measured, $\Delta T$ (K)        | Max. temperature rise limit, $\Delta T$ (K) |   |
| 19.7                       |   |   |   |
| Test corner                | 10,4  | 150   |   |
| Supply cord                | 19,3  | 150   |   |
| Enclosure of main body     | 13,5  | For Cl.30                                   |   |
| Touch panel                | 0,7   | For Cl.30                                   |   |
| 19.102                     |   |   |   |
| Test corner                | 11,8  | 150   |   |
| Supply cord                | 20,8  | 150   |   |
| Supplementary information: |   |   |   |

| 21.1                       | TABLE: Impact resistance |                    |          | P |
|----------------------------|--------------------------|--------------------|----------|---|
| Impacts per surface        | Surface tested           | Impact energy (Nm) | Comments |   |
| 3                          | Enclosure                | 0,5                | Pass     |   |
| Supplementary information: |                          |                    |          |   |

| 24.1                | TABLE: Critical components information  |                |                          |               |  | P |
|---------------------|---|----------------|--------------------------|---------------|--|---|
| Object/<br>part No. | Manufacturer/<br>trademark              | Type/<br>model | Technical data           | Standard      | Mark(s) of<br>conformity <sup>1)2)</sup> |   |
| Plug with cord      | Cixi Yuantong Cable Appliance Co., Ltd. | YT-3           | AC 250 V, 16 A           | VDE 0620-2-1  | VDE*<br>40052645                         |   |
|                     | Cixi Yuantong Cable Appliance Co., Ltd. | H05VV-F        | 3 × 0,75 mm <sup>2</sup> | EN 50525-2-11 | VDE*<br>40052017                         |   |
| (Alternative)       | Dongguan Ubill Electrical Co., Ltd.     | YG-102         | AC 250 V, 16 A           | VDE 0620-2-1  | VDE*<br>40051501                         |   |
|                     | Dongguan Ubill Electrical Co., Ltd.     | H05VV-F        | 3 × 0,75 mm <sup>2</sup> | EN 50525-2-11 | VDE*<br>40042748                         |   |
| (Alternative)       | Cixi Yelei Electron Co., Ltd.           | YL-03          | AC 250 V, 16 A           | VDE 0620-2-1  | VDE*<br>40052989                         |   |

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|--|---|--------------------|--|-------------------------------|---|
| Clause   | Requirement + Test                                  |                    |  | Result - Remark               | Verdict   |
|  | Cixi Yelei Electron Co., Ltd.                       | H05VV-F            | 3 x0,75 mm <sup>2</sup>                    | EN 50525-2-11                 | VDE*<br>40052058  |
| (Alternative)  | NINGBO JINZE ELECTRIC CO., LTD.                     | JJ03               | AC 250 V, 16 A                             | VDE 0620-2-1                  | VDE*<br>40034209  |
|  | Ningbo Jinze Electric Co., Ltd.                     | H05VV-F            | 3 x0,75 mm <sup>2</sup>                    | EN 50525-2-11                 | VDE*<br>40033407  |
| (Alternative)  | PUNENG (CIXI CITY) CABLE CO., LTD.                  | PSB-16             | AC 250 V, 16 A                             | VDE 0620-2-1                  | VDE*<br>40055174  |
|  | PUNENG (CIXI CITY) CABLE CO., LTD.                  | H05VV-F            | 3 x0,75 mm <sup>2</sup>                    | EN 50525-2-11                 | VDE*<br>40055024  |
| BS Plug with cord<br>(Fitted with an appropriate size fuse link) | Ningbo Qiaopu Electric Co., Ltd.                    | D09<br>D09A        | AC 250V                                    | BS 1363-1                     | ASTA*<br>930  |
|  | Ningbo Qiaopu Electric Co., Ltd.                    | H05VV-F            | 3 × 0,75 mm <sup>2</sup>                   | EN 50525-2-11                 | TUV*<br>R50279805   |
|  | Ningbo Qiaopu Electric Co., Ltd.                    | H05RR-F<br>H05RN-F | 3 × 0,75 mm <sup>2</sup>                   | EN 50525-2-11                 | TUV*<br>R50460888   |
| (Alternative)  | Cixi Lujie Electric Appliances Co., Limited         | LJ01               | AC 250V                                    | BS 1363-1                     | BSI*<br>KM 69196  |
|  | Cixi Yelei Electron Co., Ltd.                       | H05VV-F            | 3 x0,75 mm <sup>2</sup>                    | EN 50525-2-11                 | VDE*<br>40052058  |
|  | Ningbo Jinze Electric Co., Ltd.                     | H05VV-F            | 3 x0,75 mm <sup>2</sup>                    | EN 50525-2-11                 | VDE*<br>40034209  |
| Motor compressor<br>(ZSW-ZB13<br>ZSW-ZB14)                       | Zhejiang Asbeila Refrigeration Technology CO., LTD. | ASV53Y             | AC 220-240 V,<br>50-60 Hz, R600a           | IEC 60335-1<br>IEC 60335-2-34 | VDE*<br>40059148  |
| Motor compressor<br>(ZSW-ZB15<br>ZSW-ZB16<br>ZSW-ZB17)           | Zhejiang Asbeila Refrigeration Technology CO., LTD. | ASV30U             | AC 220-240 V,<br>50/60 Hz, R290            | IEC 60335-1<br>IEC 60335-2-34 | VDE*<br>40049630  |
| Synchronous motor  | NINGBO KELU MICROMOTOR CO LTD                       | 49SM-H16           | AC 220-240 V,<br>50/60 Hz, 4 W,<br>Class E | IEC 60335-1<br>IEC 60335-2-24 | CB*(<br>CNCVC2199<br>with report<br>CVC0012024-<br>0802+ Tested<br>with appliance |
| Solenoid valve   | Zhejiang Zhongbao Auto-control Cmpnent Co., Ltd.    | FDF2A-02C          | AC 220-240 V,<br>50/60 Hz, 13 W            | IEC 60730-1                   | TUV *<br>R 50051211   |

| IEC 60335-2-24                       |   |                   |                                 |  |   |
|--------------------------------------|---|-------------------|---------------------------------|--|---|
| Clause                               | Requirement + Test                                |                   |                                 | Result - Remark                                | Verdict                                       |
| (Alternative)                        | Anhui Tianhao Refrigerating Equipment Co., Ltd.   | FDF-2A            | AC 230V<br>50/60Hz,Max<br>0,08A | IEC 60730-1                                    | TUV SUD<br>068217 0003                        |
| Water pump                           | Shenzhen Jianyong Technology Co., Ltd.            | JY-BLLP2308-12    | DC12V                           | IEC 60335-1<br>IEC 60335-2-24                  | Tested with<br>Appliance                      |
| Fan motor                            | Cixi Deshuo Electronic Factory                    | DS12025M12<br>S   | DC12V 0,27A                     | IEC 60335-1<br>IEC 60335-2-24                  | Tested with<br>appliance                      |
| Suction pump Motor<br>(For ZSW-ZB15) | Jieyang Pinchang Intelligent Technology Co., Ltd. | 365-12170         | DC12V                           | IEC 60335-1<br>IEC 60335-2-24                  | Tested with<br>appliance                      |
| Internal wire                        | ZUANBAO ELECTRONIC CO LTD                         | 1007              | 300V,80°C,<br>18-28AWG          | IEC 60335-1<br>IEC 60335-2-24<br>UL758         | UL<br>E515028+<br>Tested with<br>appliance    |
| (Alternative)                        | Hangzhou Angchi Electronics Co Ltd                | 1007              | 300V,80°C,<br>18-28AWG          | IEC 60335-1<br>IEC 60335-2-24<br>UL758         | UL<br>E527085+<br>Tested with<br>appliance    |
| (Alternative)                        | Cixi Haosheng Wire & Cable Co., Ltd.              | H05V-K<br>H05V-U  | 1*0,5mm <sup>2</sup>            | EN 50525-2-31<br>IEC 60335-1<br>IEC 60335-2-24 | VDE*<br>40021089+<br>Tested with<br>appliance |
| (Alternative)                        | Cixi City Haoteng Cable Co., Ltd.                 | H05S-K<br>H05SJ-K | 1*0,5mm <sup>2</sup>            | EN 50525-2-31<br>IEC 60335-1<br>IEC 60335-2-24 | VDE*<br>40037535+<br>Tested with<br>appliance |
| (Alternative)                        | WUXI ELPONT RADIATION TECHNOLOGY CO LTD           | 3478              | 600V,125°C,<br>18-28AWG         | EN 50525-2-31<br>IEC 60335-1<br>IEC 60335-2-24 | UL<br>E186848+<br>Tested with<br>appliance    |
| (Alternative)                        | WUXI HUAHAO ELECTRIC CO LTD                       | 3478              | 600V,125°C,<br>18-28AWG         | EN 50525-2-31<br>IEC 60335-1<br>IEC 60335-2-24 | UL<br>E231903+<br>Tested with<br>appliance    |
| - motor<br>Lead wire                 | Dongguan Cihang Electronic Technology Co., Ltd    | 2468              | 300V,80°C,<br>18-28AWG          | IEC 60335-1<br>IEC 60335-2-24<br>UL758         | UL<br>E524105+<br>Tested with<br>appliance    |
| (Alternative)                        | DONGGUAN DANYANG ELECTRONIC WIRE CO LTD           | 1569              | 300V, 105°C,<br>18-28AWG        | IEC 60335-1<br>IEC 60335-2-24<br>UL758         | UL<br>E332522+<br>Tested with<br>appliance    |
| (Alternative)                        | Guangdong Shouyi Wire and Cable Co Ltd            | 2468              | 300V, 80°C,<br>18-28AWG         | IEC 60335-1<br>IEC 60335-2-24<br>UL758         | UL<br>E469565+<br>Tested with<br>appliance    |

| IEC 60335-2-24 |   |                               |                              |   |                                      |
|----------------|---|-------------------------------|------------------------------|---|--------------------------------------|
| Clause         | Requirement + Test  |                               |                              | Result - Remark                             | Verdict                              |
| (Alternative)  | Zhongshan Zhaoyuan Electric Appliance Co Ltd                        | 2468                          | 300V, 80°C, 18-28AWG         | IEC 60335-1<br>IEC 60335-2-24<br>UL758      | UL E522990+<br>Tested with appliance |
| (Alternative)  | DONGGUAN YIAO ELECTRONICS CO LTD                                    | 2468                          | 300V, 80°C, 18-28AWG         | IEC 60335-1<br>IEC 60335-2-24<br>UL758      | UL E348933+<br>Tested with appliance |
| -PCB           | KINGBOARD LAMINATES HOLDINGS LTD                                    | KB-5150<br>KB-5152<br>KB-6160 | V-0, Min thickness: 1,1mm    | IEC 60335-1<br>IEC 60335-2-24<br>UL 796     | UL E123995+<br>Tested with appliance |
| Fuse link      | Shanghai Fullness Electrical Co., Ltd.                              | TSP                           | T3,15A 250V                  | IEC 60127-1<br>IEC 60127-3                  | TUV R 50315914                       |
| (Alternative)  | XC Electric (Shen Zhen) Corp. Ltd.                                  | 5TE                           | T3,15A 250V                  | IEC 60127-1<br>IEC 60127-3                  | VDE 40036821                         |
| (Alternative)  | Dongguan Reomax Electronics Technology Co., Ltd.                    | SET                           | T3,15A 250V                  | IEC 60127-1<br>IEC 60127-3                  | VDE* 40050560                        |
| (Alternative)  | Honghu Bluelight Electronic Co., Ltd.                               | 6ET                           | T3,15A 250V                  | IEC 60127-1<br>IEC 60127-3                  | VDE 40047916                         |
| (Alternative)  | Dongguan LUOYI Electronics Technology Co., Ltd.                     | SAT                           | T3,15A 250V                  | IEC 60127-1<br>IEC 60127-3                  | VDE 40050512                         |
| X2 capacitor   | DongGuan Chengdong Electronic Technology Co., Ltd.                  | MPX                           | 275V~, 0,22 µF, 40/110/56/B  | IEC 60384-14                                | VDE* 40046845                        |
| (Alternative)  | CHANGXING YOUCHANG ELECTRONIC CO.,LTD                               | MKP/MPX                       | AC 275V, 0,22 µF, 40/100/21  | IEC 60384-14                                | VDE 40049705                         |
| (Alternative)  | Tenta Electric Industrial Co. Ltd.                                  | MEX                           | AC 275 V, 0,22 µF, 40/100/21 | IEC 60384-14                                | VDE 119119                           |
| Varistor       | Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Tld. | STE 10D471K<br>STE 10D331K    | T85                          | IEC 61051-1<br>IEC 61051-2<br>IEC 61051-2-2 | VDE 40023049                         |
| (Alternative)  | JYH HSU (JEC) ELECTRONICS LTD                                       | JEC 10D471K<br>JEC 10D331K    | T125                         | IEC 61051-1<br>IEC 61051-2<br>IEC 61051-2-2 | TUV SUD* 105842 0001                 |
| (Alternative)  | Dongguan City Dafu Electronics Co., Ltd.                            | 10D471K<br>10D331K            | T125                         | IEC 61051-1<br>IEC 61051-2<br>IEC 61051-2-2 | VDE 40050909                         |
| (Alternative)  | Suzhou Xinhonggao Electronic Co., Ltd.                              | 10D471K<br>10D331K            | T125                         | IEC 61051-1<br>IEC 61051-2<br>IEC 61051-2-2 | TUV SUD 120484 0001                  |

| IEC 60335-2-24                                 |   |                |                            |  |  |
|--|---|----------------|----------------------------|--|--|
| Clause   | Requirement + Test                              |                |                            | Result - Remark                            | Verdict  |
| Relay  | NINGBO ZETTLER ELECTRONICS CO., LTD.            | JQC-3FF        | AC 277V, 10A, 1E5, T85     | IEC 61810-1<br>IEC 60079-0<br>IEC 60079-15 | TUV *R<br>50265555<br>TUV<br>AK 50461281<br>0002 |
| (Alternative)                                  | NINGBO ZETTLER ELECTRONICS CO., LTD.            | JT32F-G        | 250V, 10A, 10E4, T85       | IEC 61810-1<br>IEC 60079-0<br>IEC 60079-15 | VDE*<br>40049146<br>TUV<br>AK 50478433<br>0002   |
| Micro switch                                   | Guangdong Yushun Electric Appliance Ltd.        | KW-5           | 5(3)A,250VAC, T125,1E4     | IEC 61058-1<br>IEC 60079-0<br>IEC 60079-15 | TUV *R<br>50179582<br>TUV*<br>CL 50673783        |
| Y capacitor                                    | JYH HSU (JEC) ELECTRONICS LTD                   | JY 472M        | AC 300V, 4700pF, 40/085/21 | IEC 60384-14                               | VDE<br>40038643                                  |
| (Alternative)                                  | Dongguan City Dafu Electronics Co. Ltd.         | CT7 Y2         | AC 300V, 4700pF, 25/085/21 | IEC 60384-14                               | VDE<br>40041521                                  |
| Transformer (For ZSW-ZB13, ZSW-ZB14)           | NINGBO ZHISHUAI ELECTRICAL TECHNOLOGY CO., LTD. | EE16           | 12V 1A                     | IEC 60335-1<br>IEC 60335-2-24              | Tested with appliance                            |
| Transformer (For ZSW-ZB15, ZSW-ZB16, ZSW-ZB17) | NINGBO ZHISHUAI ELECTRICAL TECHNOLOGY CO., LTD. | EE1610         | 0,8MH                      | EC/EN 60335-1<br>IEC 60335-2-24            | Tested with appliance                            |
| - Bobbin                                       | CHANG CHUN Plastics CO.,LTD                     | EQ2201         | T378JB                     | UL 94<br>IEC 60335-1<br>IEC 60335-2-24     | UL E59481 + tested with appliance                |
| - Winding                                      | HUZHOU NANXUN SHANGFU CABLE CO LTD              | QA/180         | 180°C                      | UL 1446<br>IEC 60335-1<br>IEC 60335-2-24   | UL E330288 + Tested with appliance               |
| -Tripple-insulated wire in transformer         | FURUKAWA ELECTRIC CO LTD                        | TEX-E          | 130°C                      | UL 2353<br>IEC 60335-1<br>IEC 60335-2-24   | Tested with appliance+ UL E206440                |
| - Insulation tape                              | Haining ChuLong Tape Co Ltd.                    | CL All Color-1 | PET, 130°C                 | UL 510<br>EN 60335-1<br>EN 60335-2-24      | UL E464604 + Tested with appliance               |
| - Varnish                                      | SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO LTD. | T-4260(a)      | MW28-C, 130°C              | UL 1446<br>IEC 60335-1<br>IEC 60335-2-24   | UL E228349 + Tested with appliance               |

| IEC 60335-2-24  |   |                  |  |   |                                    |
|---|---|------------------|--|---|------------------------------------|
| Clause  | Requirement + Test                                |                  |  | Result - Remark                         | Verdict                            |
| Condenser   | NINGBO ZHISHUAI ELECTRICAL TECHNOLOGY CO., LTD.   | --               | Thickness: 0,6 mm, pipe diameter: 4 mm | IEC 60335-1<br>IEC 60335-2-24           | Tested with appliance              |
| Evaporator  | NINGBO ZHISHUAI ELECTRICAL TECHNOLOGY CO., LTD.   | --               | Thickness: 0,6 mm, pipe diameter: 8 mm | IEC 60335-1<br>IEC 60335-2-24           | Tested with appliance              |
| Shrinkable tube   | DONGGUAN SALIPT CO LTD                            | SALIPT S-901-600 | 600V, 125°C                            | UL 224<br>IEC 60335-1<br>IEC 60335-2-24 | UL E209436 + tested with appliance |
| (Alternative)   | SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD     | RSFR-H           | 600V, 125°C                            | UL 224<br>EN 60335-1<br>EN 60335-2-24   | UL E203950 + tested with appliance |
| (Alternative)   | Dong Guan Zhongdian New Material Co Ltd           | ZDXLPEST-001     | 600V, 125°C                            | UL 224<br>EN 60335-1<br>EN 60335-2-24   | UL E538587 + tested with appliance |
| (Alternative)   | GuangDong Sansun New Material Technology CO., LTD | SS-300<br>SS-600 | 600V, 125°C                            | UL 224<br>EN 60335-1<br>EN 60335-2-24   | UL E540699 + tested with appliance |
| Enclosure   | NINGBO ZHISHUAI ELECTRICAL TECHNOLOGY CO., LTD.   | PP               | Min.thickness: 2,0mm                   | IEC 60335-1<br>IEC 60335-2-24           | Tested with appliance              |
| Plastic for water tanks   | NINGBO ZHISHUAI ELECTRICAL TECHNOLOGY CO., LTD.   | PP               | Min.thickness: 2,0mm                   | IEC 60335-1<br>IEC 60335-2-24           | Tested with appliance              |
| Touch panel (ZSW-ZB13, ZSW-ZB15, ZSW-ZB16, ZSW-ZB17)                        | NINGBO ZHISHUAI ELECTRICAL TECHNOLOGY CO., LTD.   | ABS              | Min.thickness: 2,0mm                   | IEC 60335-1<br>IEC 60335-2-24           | Tested with appliance              |
| Knob (ZSW-ZB14)   | NINGBO ZHISHUAI ELECTRICAL TECHNOLOGY CO., LTD.   | ABS              | Min.thickness: 2,0mm                   | IEC 60335-1<br>IEC 60335-2-24           | Tested with appliance              |
| Supplementary information:  |   |                  |  |   |                                    |
| 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. |   |                  |  |   |                                    |
| 2) License available upon request   |   |                  |  |   |                                    |

| 28.1                          | TABLE: Threaded part torque test |                               |                     | P |
|-------------------------------|----------------------------------|-------------------------------|---------------------|---|
| Threaded part identification: | Diameter of thread (mm)          | Column number (I, II, or III) | Applied torque (Nm) |   |
| Earthing screw                | 3.6                              | II                            | 0,8                 |   |

| IEC 60335-2-24 |                    |                 |         |
|----------------|--------------------|-----------------|---------|
| Clause         | Requirement + Test | Result - Remark | Verdict |

Supplementary information:

| 29.1                       | TABLE: Clearances          |                     |                    |                 |                 |                  | P |
|----------------------------|----------------------------|---------------------|--------------------|-----------------|-----------------|------------------|---|
|                            | Overvoltage category ..... |                     |                    |                 |                 | II               | — |
|                            |                            | Type of insulation: |                    |                 |                 |                  |   |
| Rated impulse voltage (V): | Min. cl (mm)               | Basic (mm)          | Supplementary (mm) | Reinforced (mm) | Functional (mm) | Verdict / Remark |   |
| 330                        | 0,2* / 0,5 / 0,8**         | —                   | —                  | —               | —               | —                |   |
| 500                        | 0,2* / 0,5 / 0,8**         | —                   | —                  | —               | —               | —                |   |
| 800                        | 0,2* / 0,5 / 0,8**         | —                   | —                  | —               | —               | —                |   |
| 1 500                      | 0,5 / 0,8** / 1,0***       | —                   | —                  | —               | —               | —                |   |
| 2 500                      | 1,5 / <u>2,0***</u>        | >2,6                | >2,6               | —               | >2,6            | P                |   |
| 4 000                      | 3,0 / <u>3,5***</u>        |                     |                    | >4,6            |                 | P                |   |
| 6 000                      | 5,5 / 6,0***               | —                   | —                  | —               | —               | —                |   |
| 8 000                      | 8,0 / 8,5***               | —                   | —                  | —               | —               | —                |   |
| 10 000                     | 11,0 / 11,5***             | —                   | —                  | —               | —               | —                |   |

Supplementary information:

\*) For tracks on printed circuit boards if pollution degree 1 and 2

\*\*) For pollution degree 3

\*\*\*) If the construction is affected by wear, distortion, movement of the parts or during assembly

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

| IEC 60335-2-24 |                    |  |  |  |  |  |  |                 |  |  |         |  |
|----------------|--------------------|--|--|--|--|--|--|-----------------|--|--|---------|--|
| Clause         | Requirement + Test |  |  |  |  |  |  | Result - Remark |  |  | Verdict |  |

| 29.2            | TABLE: Creepage distances, basic, supplementary and reinforced insulation |      |      |      |      |      |            |   |   |       |     | P |
|-----------------|---|------|------|------|------|------|------------|---|---|-------|-----|---|
| 250             | 1,12  | 2,5  | 3,6  | 5,0  | 6,4  | 7,2  | <b>8,0</b> | — | — | >10,4 | P   |   |
| 400             | 1,0   | 2,0  | 2,8  | 4,0  | 5,0  | 5,6  | 6,3        | — | — | —     | N/A |   |
| 400             | 1,0   | 2,0  | 2,8  | 4,0  | 5,0  | 5,6  | 6,3        | — | — | —     | N/A |   |
| 400             | 2,0   | 4,0  | 5,6  | 8,0  | 10,0 | 11,2 | 12,6       | — | — | —     | N/A |   |
| 500             | 1,3   | 2,5  | 3,6  | 5,0  | 6,3  | 7,1  | 8,0        | — | — | —     | N/A |   |
| 500             | 1,3   | 2,5  | 3,6  | 5,0  | 6,3  | 7,1  | 8,0        | — | — | —     | N/A |   |
| 500             | 2,6   | 5,0  | 7,2  | 10,0 | 12,6 | 14,2 | 16,0       | — | — | —     | N/A |   |
| >630 and ≤800   | 1,8   | 3,2  | 4,5  | 6,3  | 8,0  | 9,0  | 10,0       | — | — | —     | N/A |   |
| >630 and ≤800   | 1,8   | 3,2  | 4,5  | 6,3  | 8,0  | 9,0  | 10,0       | — | — | —     | N/A |   |
| >630 and ≤800   | 3,6   | 6,4  | 9,0  | 12,6 | 16,0 | 18,0 | 20,0       | — | — | —     | N/A |   |
| >800 and ≤1000  | 2,4   | 4,0  | 5,6  | 8,0  | 10,0 | 11,0 | 12,5       | — | — | —     | N/A |   |
| >800 and ≤1000  | 2,4   | 4,0  | 5,6  | 8,0  | 10,0 | 11,0 | 12,5       | — | — | —     | N/A |   |
| >800 and ≤1000  | 4,8   | 8,0  | 11,2 | 16,0 | 20,0 | 22,0 | 25,0       | — | — | —     | N/A |   |
| >1000 and ≤1250 | 3,2   | 5,0  | 7,1  | 10,0 | 12,5 | 14,0 | 16,0       | — | — | —     | N/A |   |
| >1000 and ≤1250 | 3,2   | 5,0  | 7,1  | 10,0 | 12,5 | 14,0 | 16,0       | — | — | —     | N/A |   |
| >1000 and ≤1250 | 6,4   | 10,0 | 14,2 | 20,0 | 25,0 | 28,0 | 32,0       | — | — | —     | N/A |   |
| >1250 and ≤1600 | 4,2   | 6,3  | 9,0  | 12,5 | 16,0 | 18,0 | 20,0       | — | — | —     | N/A |   |
| >1250 and ≤1600 | 4,2   | 6,3  | 9,0  | 12,5 | 16,0 | 18,0 | 20,0       | — | — | —     | N/A |   |
| >1250 and ≤1600 | 8,4   | 12,6 | 18,0 | 25,0 | 32,0 | 36,0 | 40,0       | — | — | —     | N/A |   |
| >1600 and ≤2000 | 5,6   | 8,0  | 11,0 | 16,0 | 20,0 | 22,0 | 25,0       | — | — | —     | N/A |   |
| >1600 and ≤2000 | 5,6   | 8,0  | 11,0 | 16,0 | 20,0 | 22,0 | 25,0       | — | — | —     | N/A |   |
| >1600 and ≤2000 | 11,2  | 16,0 | 22,0 | 32,0 | 40,0 | 44,0 | 50,0       | — | — | —     | N/A |   |
| >2000 and ≤2500 | 7,5   | 10,0 | 14,0 | 20,0 | 25,0 | 28,0 | 32,0       | — | — | —     | N/A |   |
| >2000 and ≤2500 | 7,5   | 10,0 | 14,0 | 20,0 | 25,0 | 28,0 | 32,0       | — | — | —     | N/A |   |
| >2000 and ≤2500 | 15,0  | 20,0 | 28,0 | 40,0 | 50,0 | 56,0 | 64,0       | — | — | —     | N/A |   |
| >2500 and ≤3200 | 10,0  | 12,5 | 18,0 | 25,0 | 32,0 | 36,0 | 40,0       | — | — | —     | N/A |   |
| >2500 and ≤3200 | 10,0  | 12,5 | 18,0 | 25,0 | 32,0 | 36,0 | 40,0       | — | — | —     | N/A |   |
| >2500 and ≤3200 | 20,0  | 25,0 | 36,0 | 50,0 | 64,0 | 72,0 | 80,0       | — | — | —     | N/A |   |
| >3200 and ≤4000 | 12,5  | 16,0 | 22,0 | 32,0 | 40,0 | 45,0 | 50,0       | — | — | —     | N/A |   |
| >3200 and ≤4000 | 12,5  | 16,0 | 22,0 | 32,0 | 40,0 | 45,0 | 50,0       | — | — | —     | N/A |   |
| >3200 and ≤4000 | 25,0  | 32,0 | 44,0 | 64,0 | 80,0 | 90,0 | 100,0      | — | — | —     | N/A |   |

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|----------------|--------------------|-----------------|---------|
| Clause         | Requirement + Test | Result - Remark | Verdict |

| 29.2              | TABLE: Creepage distances, basic, supplementary and reinforced insulation |       |       |       |       |       |       |   |   |   |  | P   |
|-------------------|---|-------|-------|-------|-------|-------|-------|---|---|---|--|-----|
| >4000 and ≤5000   | 16,0  | 20,0  | 28,0  | 40,0  | 50,0  | 56,0  | 63,0  |   | — | — |  | N/A |
| >4000 and ≤5000   | 16,0  | 20,0  | 28,0  | 40,0  | 50,0  | 56,0  | 63,0  | — |   | — |  | N/A |
| >4000 and ≤5000   | 32,0  | 40,0  | 56,0  | 80,0  | 100,0 | 112,0 | 126,0 | — | — |   |  | N/A |
| >5000 and ≤6300   | 20,0  | 25,0  | 36,0  | 50,0  | 63,0  | 71,0  | 80,0  |   | — | — |  | N/A |
| >5000 and ≤6300   | 20,0  | 25,0  | 36,0  | 50,0  | 63,0  | 71,0  | 80,0  | — |   | — |  | N/A |
| >5000 and ≤6300   | 40,0  | 50,0  | 72,0  | 100,0 | 126,0 | 142,0 | 160,0 | — | — |   |  | N/A |
| >6300 and ≤8000   | 25,0  | 32,0  | 45,0  | 63,0  | 80,0  | 90,0  | 100,0 |   | — | — |  | N/A |
| >6300 and ≤8000   | 25,0  | 32,0  | 45,0  | 63,0  | 80,0  | 90,0  | 100,0 | — |   | — |  | N/A |
| >6300 and ≤8000   | 50,0  | 64,0  | 90,0  | 126,0 | 160,0 | 180,0 | 200,0 | — | — |   |  | N/A |
| >8000 and ≤10000  | 32,0  | 40,0  | 56,0  | 80,0  | 100,0 | 110,0 | 125,0 |   | — | — |  | N/A |
| >8000 and ≤10000  | 32,0  | 40,0  | 56,0  | 80,0  | 100,0 | 110,0 | 125,0 | — |   | — |  | N/A |
| >8000 and ≤10000  | 64,0  | 80,0  | 112,0 | 160,0 | 200,0 | 220,0 | 250,0 | — | — |   |  | N/A |
| >10000 and ≤12500 | 40,0  | 50,0  | 71,0  | 100,0 | 125,0 | 140,0 | 160,0 |   | — | — |  | N/A |
| >10000 and ≤12500 | 40,0  | 50,0  | 71,0  | 100,0 | 125,0 | 140,0 | 160,0 | — |   | — |  | N/A |
| >10000 and ≤12500 | 80,0  | 100,0 | 142,0 | 200,0 | 250,0 | 280,0 | 320,0 | — | — |   |  | N/A |

Supplementary information:  
 \*) Material group IIIb is allowed if the working voltage does not exceed 50 V  
 \*\*) B = Basic insulation, S = Supplementary insulation, R = Reinforced insulation

| 29.2                 | TABLE: Creepage distances, functional insulation |                |     |           |                |      |            |                  | P |
|----------------------|--|----------------|-----|-----------|----------------|------|------------|------------------|---|
| Working voltage (V): | Creepage distance (mm)                           |                |     |           |                |      |            | Verdict / Remark |   |
|                      | Pollution degree                                 |                |     |           |                |      |            |                  |   |
|                      | 1  | 2              |     |           | 3              |      |            |                  |   |
|                      |  | Material group |     |           | Material group |      |            |                  |   |
|                      |  | I              | II  | IIIa/IIIb | I              | II   | IIIa/IIIb* |                  |   |
| ≤10                  | 0,08   | 0,4            | 0,4 | 0,4       | 1,0            | 1,0  | 1,0        | N/A              |   |
| 50                   | 0,16   | 0,56           | 0,8 | 1,1       | 1,4            | 1,6  | 1,8        | N/A              |   |
| 125                  | 0,25   | 0,71           | 1,0 | 1,4       | 1,8            | 2,0  | 2,2        | N/A              |   |
| 250                  | 0,42   | 1,0            | 1,4 | 2,0       | 2,5            | 2,8  | <b>3,2</b> | P(4,8)           |   |
| 400                  | 0,75   | 1,6            | 2,2 | 3,2       | 4,0            | 4,5  | 5,0        | N/A              |   |
| 500                  | 1,0  | 2,0            | 2,8 | 4,0       | 5,0            | 5,6  | 6,3        | N/A              |   |
| >630 and ≤800        | 1,8  | 3,2            | 4,5 | 6,3       | 8,0            | 9,0  | 10,0       | N/A              |   |
| >800 and ≤1000       | 2,4  | 4,0            | 5,6 | 8,0       | 10,0           | 11,0 | 12,5       | N/A              |   |
| >1000 and ≤1250      | 3,2  | 5,0            | 7,1 | 10,0      | 12,5           | 14,0 | 16,0       | N/A              |   |

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|----------------|--------------------|-----------------|---------|
| Clause         | Requirement + Test | Result - Remark | Verdict |

| 29.2  | TABLE: Creepage distances, functional insulation |      |      |       |       |       |       |     | P |
|---|--|------|------|-------|-------|-------|-------|-----|---|
| >1250 and ≤1600   | 4,2  | 6,3  | 9,0  | 12,5  | 16,0  | 18,0  | 20,0  | N/A |   |
| >1600 and ≤2000   | 5,6  | 8,0  | 11,0 | 16,0  | 20,0  | 22,0  | 25,0  | N/A |   |
| >2000 and ≤2500   | 7,5  | 10,0 | 14,0 | 20,0  | 25,0  | 28,0  | 32,0  | N/A |   |
| >2500 and ≤3200   | 10,0   | 12,5 | 18,0 | 25,0  | 32,0  | 36,0  | 40,0  | N/A |   |
| >3200 and ≤4000   | 12,5   | 16,0 | 22,0 | 32,0  | 40,0  | 45,0  | 50,0  | N/A |   |
| >4000 and ≤5000   | 16,0   | 20,0 | 28,0 | 40,0  | 50,0  | 56,0  | 63,0  | N/A |   |
| >5000 and ≤6300   | 20,0   | 25,0 | 36,0 | 50,0  | 63,0  | 71,0  | 80,0  | N/A |   |
| >6300 and ≤8000   | 25,0   | 32,0 | 45,0 | 63,0  | 80,0  | 90,0  | 100,0 | N/A |   |
| >8000 and ≤10000  | 32,0   | 40,0 | 56,0 | 80,0  | 100,0 | 110,0 | 125,0 | N/A |   |
| >10000 and ≤12500   | 40,0   | 50,0 | 71,0 | 100,0 | 125,0 | 140,0 | 160,0 | N/A |   |
| Supplementary information:<br>*) Material group IIIb is allowed if the working voltage does not exceed 50 V |  |      |      |       |       |       |       |     |   |

| 30.1                                   | TABLE: Ball Pressure Test of Thermoplastics |                       |                          | P |
|--|---|-----------------------|--------------------------|---|
| Allowed impression diameter (mm) ..... |   |                       | —                        |   |
| Object/ Part No./ Material             | Manufacturer/<br>trademark                  | Test temperature (°C) | Impression diameter (mm) |   |
| Plastic enclosure                      | Refer to table 24.1                         | 75                    | 0,9                      |   |
| PCB                                    | Refer to table 24.1                         | 125                   | 0,5                      |   |
| PCB box                                | Refer to table 24.1                         | 75                    | 1,2                      |   |
| Plastic for water tanks                | Refer to table 24.1                         | 65                    | 0,7                      |   |
| Touch panel                            | Refer to table 24.1                         | 75                    | 1,1                      |   |
| Knob                                   | Refer to table 24.1                         | 75                    | 1,1                      |   |
| Connector                              | Refer to table 24.1                         | 125                   | 0,8                      |   |
| Bobbin                                 | Refer to table 24.1                         | 125                   | 0,5                      |   |
| Supplementary information:             |   |                       |                          |   |

| 30.2                          | TABLE: Resistance to heat and fire – Glow-wire tests |                            |     |    |     | P       |
|-------------------------------|--|----------------------------|-----|----|-----|---------|
| Object/ Part No./<br>Material | Manufacturer/<br>trademark                           | Glow-wire test (GWT); (°C) |     |    |     | Verdict |
|                               |  | 550                        | 650 |    | 850 |         |
|                               |  |                            | te  | ti |     |         |
| Plastic enclosure             | Refer to table 24.1                                  | NI                         |     |    |     | P       |
| Touch panel                   | Refer to table 24.1                                  | NI                         |     |    |     | P       |
| PCB box                       | Refer to table 24.1                                  | NI                         |     |    |     | P       |

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|----------------|--------------------|-----------------|---------|
| Clause         | Requirement + Test | Result - Remark | Verdict |

| 30.2   | TABLE: Resistance to heat and fire – Glow-wire tests |   |     |     |     |                              |     | P       |
|--|--|---|-----|-----|-----|------------------------------|-----|---------|
| Heat shrinkable Tubing   | Refer to table 24.1                                  |   |     |     | NI  | NI                           | NI  | P       |
| Terminal sheath  | Refer to table 24.1                                  |   |     |     | NI  | NI                           | NI  | P       |
| Connector  | Refer to table 24.1                                  |   |     |     | NI  | NI                           | NI  | P       |
| Micro switch   | Refer to table 24.1                                  |   |     |     | NI  | NI                           | NI  | P       |
| Relay  | Refer to table 24.1                                  |   |     |     | NI  | NI                           | NI  | P       |
| X capacitor  | Refer to table 24.1                                  |   |     |     | NI  | NI                           | NI  | P       |
| Y capacitor  | Refer to table 24.1                                  |   |     |     | NI  | NI                           | NI  | P       |
| Varistor   | Refer to table 24.1                                  |   |     |     | NI  | NI                           | NI  | P       |
| Bobbin   | Refer to table 24.1                                  |   |     |     | NI  | NI                           | NI  | 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).....:   |  |   |     |     |     |                              |     | N/A     |
| The test specimen passed the test by virtue of most of the flaming material being withdrawn with the glow-wire (Yes/No)?.....:   |  |   |     |     |     |                              |     | Yes     |
| Ignition of the specified layer placed underneath the test specimen (Yes/No).....:   |  |   |     |     |     |                              |     | No      |
| Supplementary information:<br>550 °C GWT not relevant (or applicable) to parts of material classified at least HB40 or if relevant HBF.<br>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. |  |   |     |     |     |                              |     |         |

| 30.2/30.2.4  | TABLE: Needle- flame test (NFT) |   |                                    |                              | N/A     |
|--|---------------------------------|---|------------------------------------|------------------------------|---------|
| Object/ Part No./ Material   | Manufacturer/ trademark         | Duration of application of test flame (ta); (s) | Ignition of specified layer Yes/No | Duration of burning (tb) (s) | Verdict |
|  |                                 |   |                                    |                              |         |
|  |                                 |   |                                    |                              |         |
|  |                                 |   |                                    |                              |         |
|  |                                 |   |                                    |                              |         |
| Supplementary information:<br>- NFT not relevant (or applicable) for Parts of material classified as V-0 or V-1<br>- NFT not relevant (or applicable) for Base material of PCBs classified as V-0 or if relevant VTM-0 |                                 |   |                                    |                              |         |

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|----------------|--------------------|-----------------|---------|
| Clause         | Requirement + Test | Result - Remark | Verdict |

| AA                              | TABLE: Locked-rotor test of fan motors, windings temperature limit measurements ZSW-ZB15 |                    |                    |       | P      |             |
|---------------------------------|--|--------------------|--------------------|-------|--------|-------------|
|                                 | Test voltage (V).....:   | 240V               |                    | —     |        |             |
|                                 | Ambient, T <sub>1</sub> (°C).....:   | 20,0               |                    | —     |        |             |
|                                 | Ambient, T <sub>2</sub> (°C).....:   | 20,0               |                    | —     |        |             |
| Temperature limit T of winding: |  | R <sub>1</sub> (Ω) | R <sub>2</sub> (Ω) | T (K) | T (°C) | Max. T (°C) |
| DC fan motor                    |  | —                  | —                  | 41,2  | 61,2   | 165         |

|                               | TABLE: Electric strength measurements |                    | P |
|-------------------------------|---------------------------------------|--------------------|---|
| Test voltage applied between: | Test voltage (V)                      | Breakdown Yes / No |   |
| Windings and the body         | 1000                                  | No                 |   |

|  | TABLE: Leakage current measurements |                 | P |
|--|-------------------------------------|-----------------|---|
| A voltage equal to twice the rated voltage (V).....: | 480                                 |                 | — |
| Leakage current I between :                          | I (mA)                              | Required I (mA) |   |
| Windings and the body                                | 0,12                                | 2,0             |   |