



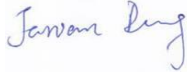

Test Report issued under the responsibility of:



TEST REPORT IEC 60335-2-40 Safety of household and similar electrical appliances Part 2-40: Particular requirements for electrical heat pumps, air conditioners and dehumidifiers	
Report Number	AHES250800170701
Date of issue	2026-01-21
Total number of pages.....	206 pages
Name of Testing Laboratory preparing the Report.....	SGS-CSTC Standards Technical Services Co., Ltd. Anhui Branch
Applicant's name	Ningbo Coldspot Intelligent Technology Co., LTD
Address	No.555 Xiangshan road, Cixi Binhai Economic Development Zone, Zhejiang Province, China
Test specification:	
Standard.....	IEC 60335-2-40:2022 in conjunction with IEC 60335-1:2010, IEC 60335-1:2010/AMD1:2013, IEC 60335-1:2010/AMD2:2016
Test procedure	CB Scheme
Non-standard test method	N/A
TRF template used	IECEE OD-2020-F1:2024, Ed.1.7
Test Report Form No.	IEC60335_2_40AA
Test Report Form(s) Originator	VDE Prüf- und Zertifizierungsinstitut GmbH
Master TRF.....	Dated 2025-05-23
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General disclaimer:	
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Test item description	Split-type Air Conditioner		
Trade Mark	-		
Manufacturer	Same as applicant		
Model/Type reference	KF-9GW/C1-100 KF-12GW/C1-100 KF-18GW/C1-100 KF-24GW/C1-100 KF-30GW/C1-100 KFR-9GW/H1-100 KFR-12GW/H1-100 KFR-18GW/H1-100 KFR-24GW/H1-100 KFR-30GW/H1-100 KF-9GW/BpC3-100 KF-12GW/BpC3-100 KF-18GW/BpC3-100 KF-24GW/BpC3-100 KF-30GW/BpC3-100 KFR-9GW/BpH3-100 KFR-12GW/BpH3-100 KFR-18GW/BpH3-100 KFR-24GW/BpH3-100 KFR-30GW/BpH3-100		
Ratings	220V-240V; 50Hz; Class I; Outdoor unit: IPX4		
	Model	Rating	Refrigerant (R32)
	KF-9GW/C1-100	Cooling: 8,0 A; 1200 W	0,38 kg
	KF-12GW/C1-100	Cooling: 8,3 A; 1600 W	0,43 kg
	KF-18GW/C1-100	Cooling: 12,4 A; 2600 W	0,80 kg
	KF-24GW/C1-100	Cooling: 14,0 A; 3000 W	0,80 kg
	KF-30GW/C1-100	Cooling: 22,4 A; 5000 W	1,75 kg
	KFR-9GW/H1-100	Cooling: 8,0 A; 1200 W Heating: 8,2 A; 1250 W	0,48 kg
	KFR-12GW/H1-100	Cooling: 8,3 A; 1600 W Heating: 10,0 A; 1700 W	0,50 kg
	KFR-18GW/H1-100	Cooling: 12,4 A; 2600 W Heating: 12,8 A; 2700 W	0,75 kg
	KFR-24GW/H1-100	Cooling: 14,0 A; 3000 W Heating: 15,0 A; 3200 W	1,15 kg
	KFR-30GW/H1-100	Cooling: 22,7 A; 5000 W Heating: 23,6 A; 5200 W	1,75 kg
	KF-9GW/BpC3-100	Cooling: 8,0 A; 1200 W	0,32 kg
	KF-12GW/BpC3-100	Cooling: 8,3 A; 1600 W	0,45 kg
	KF-18GW/BpC3-100	Cooling: 12,5 A; 2600 W	0,75 kg
	KF-24GW/BpC3-100	Cooling: 14,0 A; 3000 W	1,00 kg
	KF-30GW/BpC3-100	Cooling: 20,2 A; 4350 W	1,31 kg

	KFR-9GW/BpH3-100	Cooling: 8,0 A; 1200 W Heating: 8,2 A; 1250 W	0,48 kg
	KFR-12GW/BpH3-100	Cooling: 8,3 A; 1600 W Heating: 10,0 A; 1700 W	0,50 kg
	KFR-18GW/BpH3-100	Cooling: 12,4 A; 2600 W Heating: 12,8 A; 2700 W	0,75 kg
	KFR-24GW/BpH3-100	Cooling: 14,0 A; 3000 W Heating: 15,0 A; 3200 W	1,15 kg
	KFR-30GW/BpH3-100	Cooling: 20,2 A; 4350 W Heating: 20,5 A; 4500 W	1,31 kg

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	SGS-CSTC Standards Technical Services Co., Ltd. Anhui Branch
Testing location/ address		West of Building C12, Gongtuo Liheng Industrial Square, Fanhua Road, Economic & Technological Development Area, Hefei, Anhui, China
Tested by (name, function, signature)		Jarvan Deng / Project engineer 
Approved by (name, function, signature) ..		Hunter Lin / Reviewer 
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	N/A
Testing location/ address		
Tested by (name, function, signature)		
Approved by (name, function, signature) ..		
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	N/A
Testing location/ address		
Tested by (name + signature)		
Witnessed by (name, function, signature) .		
Approved by (name, function, signature) ..		
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	N/A
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	N/A
Testing location/ address		
Tested by (name, function, signature)		
Witnessed by (name, function, signature) .		
Approved by (name, function, signature) ..		
Supervised by (name, function, signature) :		

List of Attachments (including a total number of pages in each attachment):	
1. Attachment 1 – Photo documentation – 30 pages	
2. Attachment 2 – European Group Differences and EMF test – 19 pages	
Summary of testing:	
Tests performed (name of test, test clause and date test performed): IEC 60335-2-40:2022 IEC 60335-1:2010 + A1:2013 + A2: 2016 EN IEC 60335-2-40:2024 + A11:2024 EN 60335-1:2012 + A11:2014 + A13:2017+A1:2019 + A14:2019 + A2:2019 + A15:2021 + A16:2023 EN 62233:2008 Full tests were carried out on models KFR-30GW/BpH3-100. Tests of cl 10, 11, 13 and 19 were carried out on models KFR-9GW/H1-100, KFR-12GW/H1-100, KFR-18GW/H1-100, KFR-24GW/H1-100, KFR-30GW/H1-100, KFR-9GW/BpH3-100, KFR-12GW/BpH3-100, KFR-18GW/BpH3-100, KFR-24GW/BpH3-100. Test of cl 10 was carried out on other models.	Testing location: CBTL
Summary of compliance with National Differences <ul style="list-style-type: none"> IECEE Member countries that are also CENELEC members Compliance with Group Differences evaluated <input checked="" type="checkbox"/> yes <input type="checkbox"/> No <input type="checkbox"/> N/A European Group Differences <ul style="list-style-type: none"> IECEE Member countries with published National Differences which were evaluated: IECEE Member countries that did not publish any National Differences: <p>To support compliance with published National Differences, attach a compilation of relevant ND and/or GD TRFs to the CB Test Report</p>	

Use of uncertainty of measurement for decisions on conformity (decision rule) :

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").

Other:... (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

Information on uncertainty of measurement:

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.

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.


Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.


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.

SPLIT TYPE AIR CONDITIONER		
Model	KF-30GW/BpC3-100	
	Indoor	KF-30GW/BpC3-100
	Outdoor	KF-30GW/BpC3-100
		Cooling
Capacity	30000Btu/h	
Rated Cooling Current	14.5A	
Max. Input Current	20.2A	
Rated Cooling power input	3000W	
Max. Input Power	4350W	
Indoor Air Volume	1400m ³ /h	
Max.Pressure	Discharge	4.5MPa
	Suction	1.5MPa
Noise	Indoor	48dB(A)
	Outdoor	58dB(A)
Weight	Indoor	12.5kg
	Outdoor	31kg
Rated Voltage	230V~	
Rated Frequency	50Hz	
Refrigerant/Charge	R32/1.31kg	
Outdoor Unit Water Proof Protection	IPX4	
INVERTER		

SPLIT TYPE AIR CONDITIONER		
Model	KFR-30GW/BpH3-100	
	Indoor	KFR-30GW/BpH3-100
	Outdoor	KFR-30GW/BpH3-100
		Cooling
		Heating
Capacity	30000Btu/h	32000Btu/h
Current	14.5A	18.5A
Max. Input Current	20.2A	20.5A
Power Input	3000W	4050W
Max. Input Power	4350W	4500W
Indoor Air Volume	1400m ³ /h	1500m ³ /h
Max.Pressure	Discharge	4.5MPa
	Suction	1.5MPa
Noise	Indoor	48dB(A)
	Outdoor	58dB(A)
Weight	Indoor	13kg
	Outdoor	31.5kg
Rated Voltage	230V~	
Rated Frequency	50Hz	
Refrigerant/Charge	R32/1.31kg	
Outdoor Unit Water Proof Protection	IPX4	
INVERTER		

SPLIT TYPE AIR CONDITIONER		
Model	KF-30GW/C1-100	
	Indoor	KF-30GW/C1-100
	Outdoor	KF-30GW/C1-100
	Cooling	
Capacity	30000Btu/h	
Rated Cooling Current	18.5A	
Max. Input Current	22.4A	
Rated Cooling power input	4100W	
Max. Input Power	5000W	
Indoor Air Volume	1400m ³ /h	
Max. Pressure	Discharge	4.5MPa
	Suction	1.5MPa
Noise	Indoor	48dB(A)
	Outdoor	58dB(A)
Weight	Indoor	12.5kg
	Outdoor	39kg
Rated Voltage	 A2L	230V~
Rated Frequency		50Hz
Refrigerant/Charge		R32/1.75kg
Outdoor Unit Water Proof Protection	IPX4	

SPLIT TYPE AIR CONDITIONER		
Model	KFR-30GW/H1-100	
	Indoor	KFR-30GW/H1-100
	Outdoor	KFR-30GW/H1-100
	Cooling	Heating
Capacity	30000Btu/h	32000Btu/h
Current	18.5A	22.3A
Max. Input Current	22.7A	23.6A
Power Input	4100W	4500W
Max. Input Power	5000W	5200W
Indoor Air Volume	1400m ³ /h	1500m ³ /h
Max. Pressure	Discharge	4.5MPa
	Suction	1.5MPa
Noise	Indoor	48dB(A)
	Outdoor	58dB(A)
Weight	Indoor	13kg
	Outdoor	39.5kg
Rated Voltage	 A2L	230V~
Rated Frequency		50Hz
Refrigerant/Charge		R32/1.75kg
Outdoor Unit Water Proof Protection	IPX4	



Ningbo Coldspot Intelligent Technology Co., LTD

No.555 Xiangshan road, Cixi Binhai Economic Development Zone,

Zhejiang Province, China

Remark:

The labels for other models are totally identical with above except for the model name and some capability value.

- 1) The Height of CE logo shall not be less than 5 mm; Height of WEEE logo shall not be less than 7 mm;
- 2) As declared by the applicant, the importer (and manufacturer, if it is different)'s name, registered trade name or registered trade mark and the postal address will be marked on the products before being place on the market. The contact details shall be in a language easily understood by end-users and market surveillance authorities.
- 3) Marking on the packaging or in a document accompanying the electrical equipment is only acceptable if it is not possible to place such markings on the product.

Test item particulars : Split-type Air Conditioner	
Classification of installation and use : Stationary appliance	
Supply Connection : Flexible supply cord fitted with non-detachable plug or Flexible supply cord connected to fixed wiring :	
Possible test case verdicts: - test case does not apply to the test object : N/A - test object does meet the requirement : P (Pass) - test object does not meet the requirement : F (Fail)	
Testing :	
Date of receipt of test item : 2025-10-15	
Date (s) of performance of tests : 2025-10-15 to 2025-12-30	
General remarks:	
<p>"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.</p> <p>This document is issued by the Company subject to its General Conditions of Service, available on request or accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.</p> <p>Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.</p> <p>Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.</p>	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC60335-2-40:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided..... :	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) : Same as applicant	

General product information:

The appliances were for household use only, and indoor unit intended only for indoor use. The refrigerant was R32.

These series had the similar construction and shared some critical components, refer to below table and photo documentation for further difference:

Model	Rating	Refrigerant (R32)	Heating function	Inverter
KF-9GW/C1-100	Cooling: 8,0 A; 1200 W	0,38 kg	No	No
KF-12GW/C1-100	Cooling: 8,3 A; 1600 W	0,43 kg	No	No
KF-18GW/C1-100	Cooling: 12,4 A; 2600 W	0,80 kg	No	No
KF-24GW/C1-100	Cooling: 14,0 A; 3000 W	0,80 kg	No	No
KF-30GW/C1-100	Cooling: 22,4 A; 5000 W	1,75 kg	No	No
KFR-9GW/H1-100	Cooling: 8,0 A; 1200 W Heating: 8,2 A; 1250 W	0,48 kg	Yes	No
KFR-12GW/H1-100	Cooling: 8,3 A; 1600 W Heating: 10,0 A; 1700 W	0,50 kg	Yes	No
KFR-18GW/H1-100	Cooling: 12,4 A; 2600 W Heating: 12,8 A; 2700 W	0,75 kg	Yes	No
KFR-24GW/H1-100	Cooling: 14,0 A; 3000 W Heating: 15,0 A; 3200 W	1,15 kg	Yes	No
KFR-30GW/H1-100	Cooling: 22,7 A; 5000 W Heating: 23,6 A; 5200 W	1,75 kg	Yes	No
KF-9GW/BpC3-100	Cooling: 8,0 A; 1200 W	0,32 kg	No	Yes
KF-12GW/BpC3-100	Cooling: 8,3 A; 1600 W	0,45 kg	No	Yes
KF-18GW/BpC3-100	Cooling: 12,5 A; 2600 W	0,75 kg	No	Yes
KF-24GW/BpC3-100	Cooling: 14,0 A; 3000 W	1,00 kg	No	Yes
KF-30GW/BpC3-100	Cooling: 20,2 A; 4350 W	1,31 kg	No	Yes
KFR-9GW/BpH3-100	Cooling: 8,0 A; 1200 W Heating: 8,2 A; 1250 W	0,48 kg	Yes	Yes
KFR-12GW/BpH3-100	Cooling: 8,3 A; 1600 W Heating: 10,0 A; 1700 W	0,50 kg	Yes	Yes
KFR-18GW/BpH3-100	Cooling: 12,4 A; 2600 W Heating: 12,8 A; 2700 W	0,75 kg	Yes	Yes
KFR-24GW/BpH3-100	Cooling: 14,0 A; 3000 W Heating: 15,0 A; 3200 W	1,15 kg	Yes	Yes
KFR-30GW/BpH3-100	Cooling: 20,2 A; 4350 W Heating: 20,5 A; 4500 W	1,31 kg	Yes	Yes

Remark:



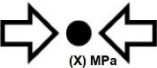

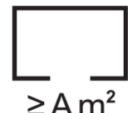
1. The fixed frequency series air conditioners with different capability values are identical with each other in main construction and similar appearance except for the size of the external dimensions, compressor and the number of internal pipelines. The only difference between Single cooling air conditioner and cooling and heating air conditioner are the difference in the main control board relay.
2. The inverter frequency series air conditioners with different capability values are identical

<p>with each other in main construction and similar appearance except for the size of the external dimensions, compressor and the number of internal pipelines. The only difference between Single cooling air conditioner and cooling and heating air conditioner are the difference in the main control board relay.</p>	
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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
5	GENERAL CONDITIONS FOR THE TESTS		—
	Tests performed according to clause 5, e.g. nature of supply, sequence of testing, etc.		P
5.2	Tests of clause 21 carried out on separate samples. Tests of clauses 11, 19 and 21 require pressure measurements made at various points in refrigerating system		P
	If the tests of Annex FF (Leak simulation tests) and Annex QQ (Methods for determining releasable charge) are carried out, at least one additional specially prepared sample is required.		N/A
	If the tests of Annex LL are carried out, additional refrigerant sensors are needed.		N/A
	If the test of Annex NN has to be carried out, an additional appliance may be used.		N/A
5.6	Any controls which regulate the temperature or humidity of the conditioned space are rendered inoperative during the test.		P
5.7	The tests and test conditions of Clauses 10 and 11 are carried out under the most severe operating conditions within the operating temperature range specified by the manufacturer. Annex AA provides examples of such temperature conditions.		P
5.10	For split units, the refrigerant lines installed in accordance with the installation instructions. The length of pipe between 5 m and 7,5 m.		P
	Where the installation instructions specify a maximum pipe length of less than 5 m, the length of pipe the maximum length specified in the installation instructions, and where the installation instructions specify a minimum pipe length of more than 7,5 m, the length of pipe the minimum length specified in the installation instructions.		P
	The thermal insulation of the refrigerant lines applied in accordance with the installation instructions.		P
6	CLASSIFICATION		—
6.1	Class I, II, III	Class I	P
6.2	Appliances shall be classified according to degree of protection against harmful ingress of water in accordance with IEC 60529:		—
	- appliances or parts intended for outdoor use be at least IPX4	IPX4 for outdoor unit	P
	- appliances intended only for indoor use (excluding laundry rooms) be IPX0		P
	- appliances intended to be used in laundry rooms be at least IPX1		N/A

IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
6.101	Appliances shall be classified according to the accessibility either as appliance accessible to the general public or as appliance not accessible to the general public.	Accessible to the general public	P
7	MARKING AND INSTRUCTIONS		—
7.1	Rated voltage or voltage range (V)	See page 2	P
	Symbol for nature of supply including number of phases, unless for single phase operation	~	P
	Rated frequency (Hz)	50 Hz	P
	Rated power input (W), or	See page 2	P
	Rated current (A)	See page 2	P
	Manufacturer's or responsible vendor's name, trademark or identification mark	Ningbo Coldspot Intelligent Technology Co., LTD	P
	Model or type reference	See page 2	P
	Symbol IEC 60417-5172, for class II appliances		N/A
	IP number, other than IPX0	IPX4 for outdoor unit	P
	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
	Refrigerant charge for each refrigerating system :	See page 2	P
	Refrigerant designation in accordance with ISO 817	R32	P
	maximum allowable pressure for the storage		N/A
	Maximum allowable pressure in the water and/or brine circuit for the heat exchanger for hydronic fan coil units.....		N/A
	Maximum allowable pressure for the refrigerant circuit; if the maximum allowable pressures for the suction and discharge side differ, a separate indication is required	High side pressure: 4,5 MPa; Low side pressure: 1,5 MPa	P
	for pre-charged pipe sets		N/A
	- refrigerant designation in accordance with ISO 817		N/A
	- the refrigerant charge in the line set		N/A

IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	- maximum allowable pressure		N/A
	- if charged with a flammable refrigerant, the flame symbol ISO 7010-W021 (2011-05) including the safety group per ISO 817		N/A
	Ratings in watts and voltage of a UV-C germicidal lamp system if employed		N/A
	Appliances are marked with all of the designations and the rated inputs of the supplementary heaters for which they are intended to be used, and have provision for identifying the actual heater that is field installed.		N/A
	Unless it is evident from the design, the enclosure of the appliance marked, by words or by symbols, with the direction of the fluid flow.		N/A
	If a flammable refrigerant is used, a warning symbol (flame symbol: ISO 7010-W021 (2011-05)) including the safety group per ISO 817 as described in 7.6 placed within sight of the marking of the refrigerant designation on the appliance. The height of the symbol at least 10 mm, and the symbol need not be in colour.		P
	Appliances using flammable refrigerants marked with the flame symbol ISO 7010-W021 (2011-05) including the safety group per ISO 817. The height of the triangle used for the symbol at least 30 mm. The required markings shall be provided on all units which contain compressors.		P
	If not already visible when accessing a service port and if a service port is provided, the service port marked to identify the type of refrigerant. If the refrigerant is flammable, symbol ISO 7010-W021 (2011-05) including the safety group per ISO 817 included, without specifying the colour.		P
	Appliances employing refrigerating systems with maximum allowable pressures > than 7 MPa be marked with symbol ISO 7000-1701 (2004-01) followed by the text "(X) MPa" and the Operator's manual; ISO 7000-0790 (2004-01). Where: "X" is the maximum allowable pressure.		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		P

IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	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		P
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 ISO 7000-1659 (2004-01)]	service indicator; read technical manual	P
	 safety group per ISO 817 [symbol ISO 7010-W021 (2011-05) plus the safety group per ISO 817 not less than 1/3 of the height of the symbol adjacent to the symbol]	warning; flammable material	P
	 (X) MPa [symbol ISO 7000-1701 (2004-01)]	pressure	N/A
	 [symbol IEC 60417-6040 (2010-08)]	ultraviolet radiation, instructional safeguard	N/A
	 [symbol IEC 60417-6412 (2019-03)]	minimum room floorarea	N/A
	ISO 7000-0790 (2004-01).		N/A
	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

IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	Units of physical quantities and their symbols according to international standardized system		P
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply, unless		P
	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		N/A
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means	By figures, letters and symbols	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
7.11	Indication for direction of adjustment of controls		P
7.12	Instructions for safe use provided		P
	Details concerning precautions during user maintenance		P
	The instructions state that:		—
	- the appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction		P
	- children being supervised not to play with the appliance		P
	For a part of class III construction supplied from a detachable power supply unit, the instructions state that the appliance is only to be used with the unit provided		N/A
	Instructions for class III appliances state that it must only be supplied at SELV, unless		N/A

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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
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
	In particular, the following information supplied:		—
	a) that the appliance installed in accordance with national wiring regulations;		P
	b) the dimensions of the space necessary for correct installation of the appliance including the minimum permissible distances to adjacent structures;		P
	c) for appliances with supplementary air heaters, the minimum clearance from the appliance to combustible surfaces;		N/A
	d) a wiring diagram with a clear indication of the connections and wiring to external control devices and supply cord;		P
	e) the range of external static pressures at which the appliance was tested (add-on heat pumps and ducted appliances with supplementary air heaters only);		N/A
	f) the method of connection of the appliance to the electrical supply and interconnection of separate components;		P
	g) indication of which parts of the appliance are suitable for outdoor use, if applicable;		N/A
	h) details of type and rating of fuses, or rating of circuit breakers;		N/A
	i) details of supplementary heating elements that may be used in conjunction with the appliance, including fitting instructions either with the appliance or with the supplementary heater;		N/A
	j) maximum and minimum water or brine operating temperatures;		N/A
	k) maximum and minimum water or brine operating pressures;		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	l) maximum and minimum operating indoor and outdoor air temperatures		N/A
	m) instructions on charging of refrigerants when addition of charge is required by the manufacturer for completing the refrigerating system.		N/A
	n) when the symbol IEC 60417-6412 (2019-03) is used, a warning that the appliance installed, operated and stored in a room with a floor area not less than the minimum room area.		N/A
7.12.101	For appliances not accessible to the general public, the classification according to 6.101 included.		P
7.12.102	For appliances using flammable refrigerants, an installation manual, service, maintenance and repair manual, and decommissioning manual, either as separate or combined manuals, made available and include the information given in Annex DD.		P
	Additional guidance on transportation, marking and storage for units that employ flammable refrigerants is given in Annex CC.		P
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		P
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions state that the fixed wiring must be protected		N/A
7.12.4	Instructions for built-in appliances:		—
	- dimensions of space		N/A
	- dimensions and position of supporting and fixing		N/A
	- minimum distances between parts and surrounding structure		N/A
	- minimum dimensions of ventilating openings and arrangement		N/A
	- connection to supply mains and interconnection of separate components		N/A
	- allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless		N/A
	a switch complying with 24.3		N/A
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		N/A
	Replacement cord instructions, type Y attachment		P

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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		P
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
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		N/A
	Markings checked by inspection, measurement and rubbing test as specified		P
7.15	Markings on a main part		P
	Marking clearly discernible from the outside, if necessary after removal of a cover		P
	For portable appliances, cover can be removed or opened without a tool		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		N/A
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		P
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading		N/A
	The symbol IEC 60417-5018 placed next to the symbol IEC 60417-5172 or IEC 60417-5180		N/A
	A marking may be located on a panel that can be removed for installation or service, providing that the panel in place for the intended operation of the appliance.		N/A
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		P
7.101	Marking of fuses and overload protective devices, if replaceable		—
	- fuse rated current in amperes, type and rated voltage or		P
	- manufacturer and model of overload protective device		N/A
7.102	Marking for connection with aluminium wire, if necessary		N/A
7.103	For appliances made up of more than one factory made assembly specified by the manufacturer to be used together, instructions shall be provided for completing the assembly to ensure compliance with the requirements.		N/A
7.104	For partial units, the instructions or markings include the following additional information:		—
	- For evaporating units and condensing units, the instructions or markings shall include wording to assure that the maximum operating pressure is considered when connecting to any condenser unit or evaporator unit.		N/A
	- For evaporating units, condensing units and condenser units, the instructions or markings include refrigerant charging instructions.		N/A
	- A warning to assure that partial units only be connected to an appliance suitable for the same refrigerant.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- This unit <model xxx> is a partial unit air conditioner, complying with partial unit requirements of this International Standard, and must only be connected to other units that have been confirmed as complying to corresponding partial unit requirements of this International Standard.		N/A
	- The electrical interfaces specified with purpose, voltage, current, and safety class of construction.		N/A
	- The SELV connection points, if provided, are to be clearly indicated in the instructions. The connection point should be marked with the "read the instructions" symbol per ISO 7000-0790 (2004-01) and the Class III symbol according to IEC 60417-5180 (2003- 02).		N/A
7.105	For appliances using flammable refrigerants that have safety features depending upon the proper function of a leak detection system, the instructions or unit markings shall contain the substance of the following:		—
	"This unit is equipped with a refrigerant leak detection system for safety. To be effective, the unit must be electrically powered at all times after installation, other than when servicing."		N/A
	If any remote located refrigerant sensor is employed to detect leaked refrigerant, such remote located refrigerant sensor also apply this marking or be accompanied by such instructions.		N/A
7.106	For appliances using flammable refrigerants that have safety features depending upon the proper function of electrically powered safety measures, the instructions or unit markings shall contain the substance of the following:		—
	"This unit is equipped with electrically powered safety measures. For the safety measures to be effective, the unit must be electrically powered at all times after installation, other than when servicing."		N/A
	If any mechanical ventilation unit is employed to dilute leaked refrigerant and is not integrated in the appliance, such unit also apply this marking or be accompanied by such instructions.		N/A
7.107	For flammable refrigerants, when addition of charge is required by the installation instructions for completing the refrigerating system, the manufacturer provides a label that allows the installer to note the resulting total refrigerant charge for each refrigerating system. See Figure 101 for an example of label for field charged units.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
7.108	For appliances using flammable refrigerants, excluding appliances with A2L refrigerant charge not exceeding m1, the flame symbol ISO 7010-W021 (2011-05) including the safety group per Annex BB described in 7.6 visible on the packaging of the appliance if the appliance is charged with refrigerant.		N/A
	The perpendicular height of the symbol at least 30 mm.		N/A
7.109	Appliances employing UV-C germicidal lamp systems shall be marked with ultraviolet radiation hazard symbol IEC 60417-6040 (2010-08) and the Read operator's manual symbol ISO 7000-0790 (2004-01) in the following locations:		—
	- doors and access panels that provide direct access to an area within the appliance where the measured UV-C spectral irradiance is greater than 1,7 $\mu\text{W}/\text{cm}^2$;		N/A
	- user maintenance access panels		N/A
	- UV-C barriers.		N/A
7.110	For appliances that employ UV-C germicidal lamp systems, the instructions include the substance of the following: (IEC 60335-2-40:2018)		—
	- this appliance contains a UV-C lamp;		N/A
	- read the maintenance instructions before opening the appliance;		N/A
	- details for cleaning and other user maintenance of the appliance. They shall state that prior to cleaning or other maintenance, the appliance must be disconnected from the supply mains;		N/A
	- precautions to be taken when replacing UV-C emitters and starters, if applicable;		N/A
	- unintended use of the appliance or damage to the housing may result in the escape of dangerous UV-C radiation. UV-C radiation may, even in small doses, cause harm to the eyes and skin;		N/A
	- the appliance must be disconnected from the supply before replacing the UV-C lamp;		N/A
	- doors and access panels bearing the ultraviolet radiation hazard symbol which can have UV-C spectral irradiance greater than 1,7 $\mu\text{W}/\text{cm}^2$ are provided with an interlock switch to interrupt the power to the UV-C lamps for your safety. Do not over-ride;		N/A
	- before opening doors and access panels bearing the ultraviolet radiation hazard symbol for the conducting user maintenance, it is recommended to disconnect the power;		N/A
	- UV-C barriers bearing the ultraviolet radiation hazard symbol should not be removed;		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- for appliances with UV-C lamps, information on the replacement of UV-C lamps shall be given, including the model and/or part number;		N/A
	- if field installed, the factory specified UV-C germicidal lamp systems approved for use with the appliance specified in the instructions by the specific model number;		N/A
	- do not operate UV-C lamps outside of the appliance.		N/A
7.111	For Appliances employing refrigerating systems with maximum allowable pressures greater than 7 MPa, marked within sight of the refrigerant service ports with the following:		—
	– the symbol ISO 7000-1701 (2004-01) including the text "(X) MPa", where; "X" is not less than the maximum allowable pressure.		N/A
8	PROTECTION AGAINST ACCESS TO LIVE PARTS		—
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	Requirement applies for all positions, detachable parts removed		P
	Lamps behind a detachable cover not removed, if conditions met		N/A
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N/A
	Use of test probe B of IEC 61032, with a force not exceeding 1 N: no contact with live parts		P
	Use of test probe B of IEC 61032 through openings, with a force of 20 N: no contact with live parts		P
8.1.2	Use of test probe 13 of IEC 61032, with a force not exceeding 1 N, through openings in class 0 appliances and class II appliances/constructions: no contact with live parts		P
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		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		N/A
8.1.4	Accessible part not considered live if:		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- safety extra-low a.c. voltage: peak value not exceeding 42,4 V		N/A
	- safety extra-low d.c. voltage: not exceeding 42,4 V		N/A
	- or separated from live parts by protective impedance		P
	If protective impedance: d.c. current not exceeding 2 mA, and		P
	a.c. peak value not exceeding 0,7 mA		N/A
	- for peak values over 42,4 V up to and including 450 V, capacitance not exceeding 0,1 μ F		N/A
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 μ C		P
	- 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		P
	- appliances delivered in separate units		P
	For appliances which have a dedicated installation panel or cover and which cannot be installed without them, compliance is checked according to 5.10		—
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only		P
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
9	STARTING OF MOTOR-OPERATED APPLIANCES		—
	Requirements and tests are specified in part 2 when necessary		N/A
10	POWER INPUT AND CURRENT		—
10.1	Power input at normal operating temperature, rated voltage and normal operation not deviating from rated power input by more than shown in table 1		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

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Clause	Requirement + Test	Result - Remark	Verdict
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N/A
	the rated power input is related to the arithmetic mean value		P
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2..... :	(see appended table)	P
	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		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 current is related to the arithmetic mean value of the range		P
11	HEATING		—
11.1	If the temperature of the motor winding exceeds the value specified in Table 3 or if there is doubt with regard to the classification of the insulation system employed in a motor, compliance is checked by the tests of Annex C.		P
11.2.1	Appliances are installed in a test room in accordance with the installation instructions. In particular,		—
	– clearances to adjacent surfaces specified by the manufacturer shall be maintained;		P
	– adjustable limit controls are set at the maximum cut-out setting and the minimum differential permitted by the control adjusting means.		P
	Appliances are installed in one or more test rooms in accordance with the installation instructions. In particular,		N/A
	– clearances to adjacent surfaces specified by the manufacturer maintained;		N/A
	– adjustable limit controls are set at the maximum cut-out setting and the minimum differential permitted by the control adjusting means.		N/A
	For appliances provided with supplementary air heaters, an additional test casing as described in 11.2.5 is used.		N/A
11.2.2	For heating tests of ducted appliances with supplementary air heaters, an inlet duct is connected to the inlet air opening of the appliance.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The duct the same size as the flanges, if flanges are provided. If flanges are not provided, the duct is the same size as the inlet opening.		N/A
11.2.3	A ducted appliance which does not include supplementary air heaters is fitted with an outlet duct sized to fit the casing flanges, or opening without flanges, or locations marked for flanges, and arranged to discharge away from the return air inlet.		N/A
	The hot air outlet duct is provided with a restricting means to obtain the maximum static pressure given in the instructions		N/A
11.2.4	For the evaluation and testing of partial units, the following test setup and conditions are to be applied:		N/A
	- evaporator units and condenser units are tested as individual units at the maximum ambient temperature stated in the instructions. If not stated in the instructions, these units shall be tested at an ambient temperature that is equal to the saturated temperature of the refrigerant at the marked maximum allowable operating pressure ($\pm 0,1$ MPa) minus 10 K (± 1 K).		N/A
	- condensing units are tested in the cooling mode only, at the maximum specified ambient temperature with 9 K (± 1 K) sub-cooling and the maximum specified evaporating pressure with 11 K (± 1 K) superheat. For condensing units provided with expansion device(s), the superheat/sub-cooling is to be as under the normal control of the expansion device(s).		N/A
	- evaporating units, intended for cooling only, are tested in the cooling mode only with a condensing pressure that is equal to the marked maximum allowable operating pressure ($\pm 0,1$ MPa) with 9 K (± 1 K) sub-cooling.		N/A
	- evaporating units that are intended for reverse cycle operation are tested in the heating mode only, at the maximum specified evaporating pressure.		N/A
11.2.5	Test casing		N/A
	The test casing consists of plywood walls having a thickness of about 20 mm, with dull black painted inside surfaces and all joints sealed.		—
	The distances between the casing and the surfaces of the appliance and the outlet duct, if any, are equal to the minimum clearances according to the instructions.		—
	For appliances not specified for installation with minimum clearances, as an alternative to the plywood test casing in direct contact with the appliance, glass fibre insulating material having a thickness of at least 25 mm and a density of at least 16 kg/m ³ shall be wrapped closely around the appliance and the outlet duct, and thermocouples shall be placed in direct contact with the enclosure.		—

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Clause	Requirement + Test	Result - Remark	Verdict
11.3	Temperature rise determine by thermocouples or resistance method.		P
11.4	Test performed at supply voltage between 0,94 and 1,06 times the rated voltage	The tests were performed at 0,94 times and 1,06 times rated voltage.	P
11.5	This subclause of Part 1 is not applicable.		N/A
11.6	This subclause of Part 1 is not applicable.		—
11.7	Test conducted in heating mode and cooling mode, if both exist		P
	Additional for defrost tests in most unfavourable conditions		N/A
	Appliances operated continuously until steady conditions , except for defrost tests		P
	Appliances are operated under normal operation with flow rates which give the most unfavourable result		P
11.8	Temperatures not exceed the temperature limit according to the formula.		P
13	LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE		—
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1,15 times the rated power input (W)		N/A
	Motor-operated appliances and combined appliances supplied at 1,06 times the rated voltage (V)	1,06 times the rated voltage	P
	Protective impedance and radio interference filters disconnected before carrying out the tests		P
13.2	The leakage current is measured by means of the circuit described in figure 4 of IEC 60990:1999		P
	For stationary class I motor-operated appliances, the leakage current not exceed 3,5 mA, or 2 mA per kilowatt rated power input, whichever is higher. 31 The maximum value not exceed 10 mA for appliances accessible to the general public and 30 mA for appliances not accessible to the general public.		P
	Leakage current measurements.....	(see appended table)	P
13.3	The appliance is disconnected from the supply		P
	Electric strength tests according to table 4	(see appended table)	P
	No breakdown during the tests		P
14	TRANSIENT OVERVOLTAGES		—
	Appliances withstand the transient over-voltages to which they may be subjected		N/A
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	No flashover during the test, unless		N/A
	of functional insulation if the appliance complies with clause 19 with the clearance short-circuited		N/A
15	MOISTURE RESISTANCE		—
15.1	Electrical components of appliances shall be protected against the ingress of water which may be present in the appliance as a result of rain, overflow from the drain pan, or defrosting.		P
15.2	Tests in accordance with IEC 60529 in appliances other than IPX0, as specified:		N/A
15.3	Drain pan filled to brim and subjected to continuous overflow and fan(s) switched on		P
15.101	Spillage test as specified		N/A
	After spillage completed, appliance withstand test of clause 16		N/A
16	LEAKAGE CURRENT AND ELECTRIC STRENGTH		—
16.1	Leakage current not excessive and electric strength adequate		P
	Protective impedance disconnected from live parts before carrying out the tests		P
	Tests carried out at room temperature and not connected to the supply		P
16.2	Single-phase appliances: test voltage 1,06 times rated voltage (V)..... :	1,06 times the rated voltage	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
16.3	Electric strength tests according to table 7..... :	(see appended table)	P
	Test voltage applied between the supply cord and inlet bushing and cord guard and cord anchorage as specified..... :		N/A
	No breakdown during the tests		P

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Clause	Requirement + Test	Result - Remark	Verdict
17	OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS		—
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use	(see appended table)	P
	Appliance supplied with 1,06 or 0,94 times rated voltage under the most unfavourable short-circuit or overload likely to occur in normal use (V)	1,06 times rated voltage	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		N/A
	Temperature of the winding not exceeding the value specified in table 8	(see appended table)	P
	However, limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N/A
18	ENDURANCE		—
	Requirements and tests are specified in part 2 when necessary		N/A
19	ABNORMAL OPERATION		—
19.1	The risk of fire, mechanical damage or electric shock under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe	For main PCB	P
	Failure of the transfer medium flow, or of any control devices, shall not result in a hazard.		P
	Appliances are subjected to the tests specified in 19.2 to 19.10, 19.101, 19.102, 19.103, and 19.104 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		N/A
	Appliances incorporating voltage selector switches subjected to the test of 19.15		N/A
	Unless otherwise specified, the tests are continued until a non-self-resetting thermal cut-out operates, or		P
	until steady conditions are established		P

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Clause	Requirement + Test	Result - Remark	Verdict
	If a heating element or intentionally weak part becomes open-circuited, the relevant test is repeated on a second sample		P
19.2	Appliances with heating elements are tested under the conditions specified in Clause 11 but with restricted heat dissipation.		N/A
	The supply voltage, determined prior to the test, is that required to provide a power input of 0,85 times rated power input under normal operation when the power input has stabilized.		N/A
	This voltage is maintained throughout the test.		N/A
19.3	The test of 19.2 is repeated but with a supply voltage, determined prior to the test, equal to that required to provide a power input of 1,24 times rated power input under normal operation when the power input has stabilized.		N/A
	This voltage is maintained throughout the test.		N/A
	This subclause of Part 1 is not applicable for appliances with supplementary air heaters.		N/A
19.4	Test conditions as in clause 11, any control limiting the temperature during tests of clause 11 short-circuited		N/A
	The appliance is operated under the conditions in Clause 11 and at rated voltage, with any form of operation or any defect that can be expected during normal use. Only one fault condition is reproduced at a time, the tests being made consecutively.		P
	Examples of fault conditions are		—
	– the timer, if any, stopping in any position;		N/A
	– disconnection and reconnection of one or more phases of the supply;		N/A
	– open-circuiting or short-circuiting of components, like relays, contactors, timers, thermostats, etc.		P
	In general, tests are limited to those cases which are expected to give the most unfavourable results.		P
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		P

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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)..... :		P
19.7	The motors, other than motor-compressors and stationary circulation pumps in compliance with IEC 60335-2-51, are mounted on a support of wood or similar material. The motor rotors are locked; fan blades and brackets are not removed.	For step motors, Fan motor	P
	The motors are supplied at their supplied voltage when the appliance is supplied at rated voltage or at the upper limit of the rated voltage range, in a circuit as shown in Figure 103. Care shall be taken to complete the earthing system to permit the correct operation of the RCCB/RCBO.	(see appended table)	P
	Under these conditions, the motor is operated for 15 days (360 h) or until a protection device permanently opens the circuit, whichever is the shorter period.	(see appended table)	P
	During the test, the ambient temperature is maintained at $23\text{ °C} \pm 5\text{ °C}$.		P
	If the temperature of the motor windings does not exceed 90 °C when steady conditions are established, the test is considered to be ended.		P
	During the test, the temperature of the enclosure not exceed 150 °C and the temperature of the windings shall not exceed the values shown in Table 8.	(see appended table)	P
	Three days (72 h) after the beginning of the test, the motor withstand an electric strength test as specified in 16.3.		P
	At the end of the test, the leakage current, when measured as specified in 16.2 but with a test voltage of twice the rated voltage between all windings and the enclosure, shall not exceed 2 mA.		P
	If the motor-compressor has not been type-tested against the requirements of IEC 60335-2-34, then it subject to the following test.		N/A
	A sample provided with the rotor locked and being filled with oil and refrigerant as intended.		—
	The sample shall then be subjected to the tests specified in 19.101, 19.102, 19.103 and 19.105 of IEC 60335-2-34:2021, if applicable, and comply with the requirements in 19.104 of IEC 60335-2-34:2021.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
19.8	Three phase motors other than motor compressors are operated under the conditions of Clause 11 at rated voltage or at the upper limit of the rated voltage range with one phase disconnected, until steady conditions are obtained or the protective device operates.		N/A
19.9	This subclause of Part 1 is not applicable for motor-compressors, stationary circulation pumps in compliance with IEC 60335-2-51, and fans.		N/A
19.10	Series motor operated at 1,3 times rated voltage for 1 min (V)..... :		N/A
	During the test, parts not being ejected from the appliance		N/A
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless		P
	they comply with the conditions specified in 19.11.1		P
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8, unless		N/A
	restarting does not result in a hazard		P
	Appliances having a device with an off position obtained by electronic disconnection, or a device placing the appliance in a stand-by mode, subjected to the tests of 19.11.4	No possible unsafe operation	N/A
	If the safety of the appliance under any of the fault conditions depends on the operation of a miniature fuse-link complying with IEC 60127, the test of 19.12 is carried out		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		N/A
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided both of the following conditions are met:		—
	- the base material of the printed circuit board withstands the test of annex E		N/A
	- any loosened conductor does not reduce clearance or creepage distances between live parts and accessible metal parts below the values specified in clause 29		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
19.11.1	Fault conditions a) to g) in 19.11.2 are not applied to circuits or parts of circuits meeting both of the following conditions:		—
	- 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	Appliance did not operate, no hazard	P
	b) open circuit at the terminals of any component	Appliance did not operate, no hazard	P
	c) short circuit of capacitors, unless	Appliance did not operate, no hazard	P
	they comply with IEC 60384-14		P
	d) short circuit of any two terminals of an electronic component, other than integrated circuits	Appliance did not operate, no hazard	P
	This fault condition is not applied between the two circuits of an optocoupler		P
	e) failure of triacs in the diode mode	Appliance did not operate, no hazard	P
	f) failure of microprocessors and integrated circuits	Appliance did not operate, no hazard	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		N/A
19.11.4	The first paragraph of Part 1 in not applicable if unintentional operation does not cause any hazards.		P
	Appliances having a device with an off position obtained by electronic disconnection, or		N/A
	a device that can be placed in the stand-by mode,		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	subjected to the tests of 19.11.4.1 to 19.11.4.7, the device being set in the off position or in the stand-by mode		N/A
	Appliances incorporating a protective electronic circuit are subjected to the tests of 19.11.4.1 to 19.11.4.7. The tests are carried out after the protective electronic circuit has operated during the relevant tests of Clause 19, except 19.2, 19.6, 19.11.3, 19.102 and 19.103.		N/A
	If the appliance incorporates more than one protective electronic circuit, each protective electronic circuit tested individually with the appliance operated under normal operation at any temperature within the working range.		N/A
	Components protected by a protective electronic circuit that has been previously tested and shown to comply with the requirements of 19.11.4 of its standard need not to be retested in the final application.		N/A
	For these tests, it can be necessary to provide specially prepared component samples, e.g. compressors with locked rotor.		N/A
	Surge protective devices disconnected, unless		N/A
	They incorporate spark gaps		N/A
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4		N/A
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, at frequency ranges specified		N/A
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as specified		N/A
19.11.4.4	The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5, test level 3 or 4 as specified		N/A
	An open circuit test voltage of 2 kV is applicable for the line-to-line coupling mode		N/A
	An open circuit test voltage of 4 kV is applicable for the line-to-earth coupling		N/A
	Earthed heating elements in class I appliances disconnected		N/A
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3		N/A
19.11.4.6	Appliances having a rated current not exceeding 16 A are subjected to the class 3 voltage dips and interruptions in accordance with IEC 61000-4-11		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Appliances having a rated current exceeding 16 A are subjected to the class 3 voltage dips and interruptions in accordance with IEC 61000-4-34		N/A
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2		N/A
19.11.4.8	The appliance is supplied at rated voltage and operated under normal operation at any temperature within the working range. After 60 s 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 at any temperature within the working range.		N/A
	The appliance continues to operate normally, or		N/A
	requires a manual operation to restart		N/A
19.12	If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 60127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A)..... :	Rated: 5,0 A; measured: 18,0 A	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)	See table 13.3	P
	- supplementary insulation (V)..... :	See table 13.3	P
	- reinforced insulation (V)	See table 13.3	P
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstand the electric strength test of 16.3, the test voltage being twice the working voltage		P
	The appliance does not undergo a dangerous malfunction, and		N/A
	no failure of protective electronic circuits, if the appliance is still operable		N/A
	Appliances tested with an electronic switch in the off position, or in the stand-by mode:		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- do not become operational, or		N/A
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4		N/A
	If the appliance contains lids or doors that are controlled by one or more interlocks, one of the interlocks may be released provided that:		—
	- the lid or door does not move automatically to an open position when the interlock is released, and		N/A
	- the appliance does not start after the cycle in which the interlock was released		N/A
19.14	Appliances operated under the conditions of clause 11, any contactor or relay contact operating under the conditions of clause 11 being short-circuited		N/A
	For a relay or contactor with more than one contact, all contacts are short-circuited at the same time		N/A
	A relay or contactor operating only to ensure the appliance is energized for normal use is not short-circuited		P
	If more than one relay or contactor operates in clause 11, they are short-circuited in turn		N/A
	Locking in the "on" position of the main contacts of a contact intended for switching on and off the heating element(s) in normal use is considered to be a fault condition, unless the appliance is provided with at least two sets of contacts connected in series.		N/A
	For example, achieved by providing two contactors operating independently of each other or by providing one contactor having two independent armatures operating two independent sets of main contacts.		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	The appliance is operated under the conditions in Clause 11 at rated voltage or at the upper limit of the rated voltage range, at an ambient temperature of 23 °C ± 5 °C.		P
	When steady conditions are attained, the heat transfer medium flow of the outdoor heat exchanger is restricted or shut off, whichever is the most unfavourable without the appliance being non-operative.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	After this test, protective devices that may have operated are reset, and the test is repeated, with the heat transfer medium flow, fluid or air, of the indoor heat exchanger, restricted or shut off, whichever is the most unfavourable without the appliance being non-operative.		P
	In the case of appliances with defrosting systems, the heat transfer medium flow rate is additionally shut off at the beginning of the defrosting phase.		N/A
	Appliances incorporating a motor common to both the indoor and outdoor heat exchangers are subjected to the above test, the motor being disconnected once steady conditions are attained.		P
19.102	The indoor heat exchanger of appliances using water as a heat transfer medium is subjected to the following test.		N/A
	The appliance is operated under the conditions specified for Clause 10 at rated voltage or at the upper limit of the rated voltage range at the maximum water temperature specified by the manufacturer.		N/A
	The indoor water temperature shall be raised 15 K at a rate of 2 K/min and this temperature maintained for 30 min, after which the water temperature is lowered to its original value at the same rate.		N/A
19.103	Air to air appliances are operated under the conditions specified in Clause 11		P
	The dry-bulb temperature is then reduced to a value 5 K below the minimum value specified by the manufacturer.		P
	The test is repeated except that the dry-bulb temperature is increased to a value 10 K above the maximum temperature specified by the manufacturer, but not to exceed 55 °C.		P
	The appliances are operated at rated voltage or at the upper limit of the rated voltage range.		P
19.104	Appliances with supplementary air heater		—
19.104.1	General		—
	Appliances provided with supplementary air heaters or provisions for supplementary air heaters are subjected to the test of 19.104.2 through 19.104.8 under the conditions specified in Clause 11 unless otherwise indicated.		N/A
	All appliances with supplementary air heaters configured with inlet and outlet ducts as applicable and instrumented in accordance with the applicable subclauses of Clause 11		N/A
	Appliances are tested in the operating state and configuration which give the most unfavourable results.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Appliances are operated at an ambient temperature of $23\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ and rated voltage or at the upper limit of the rated voltage range of the supplementary air heaters		N/A
19.104.2	Restricted inlet – 1st limit cut-out		—
	To test limit cut-out conditions, the airflow conditions specified are established, the indoor airflow is reduced by restricting the inlet air opening to a rate resulting in not more than 1 K/min outlet air temperature rise until a self-resetting thermal cut-out device operates for the first time as a result of slowly restricting the free area of the inlet.		N/A
	The outlet air temperature, measured by means of the thermocouple grid, not exceed $90\text{ }^{\circ}\text{C}$.		N/A
19.104.3	Restricted inlet – minimum airflow		—
	To test heating operation conditions, after the airflow conditions specified are established, the indoor airflow is reduced by restricting the inlet air opening to such an extent that the temperature of the air in the outlet is 3 K below the temperature obtained after a self-resetting thermal cut-out device operates for the first time as a result of slowly restricting the free area of the inlet.		N/A
	The appliance shall be operated until steady state conditions are established or for 1 h, whichever is longer. During the test, the temperatures are monitored continuously and not exceed the values shown in Table 3		N/A
	To facilitate this test, the self-resetting thermal cut-out which has operated in 19.104.2 be short-circuited, if necessary.		N/A
19.104.4	Restricted inlet – restrict inlet to fully blocked		—
	To test restricted inlet conditions, after the airflow conditions specified are established, the indoor airflow is reduced by restricting the inlet air opening at a rate resulting in not more than 1 K/min outlet air temperature rise until a self-resetting thermal cut-out device operates.		N/A
	The restriction halted after any protective device operates until steady state conditions are established. After steady state conditions are reached, the restriction is resumed. The test continue until the inlet is fully restricted.		N/A
	The temperatures are monitored continuously. Temperatures shall not exceed the values shown in (Table 3 + 30 K) during the first hour and Table 3 thereafter.		N/A
19.104.5	Fan failure		—

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Clause	Requirement + Test	Result - Remark	Verdict
	To test fan failure conditions, after steady state conditions are attained, heat transfer medium flow of the indoor heat exchanger is restricted or shut off, whichever is the most unfavourable without the appliance being non-operative.		N/A
	Temperatures shall not exceed the values shown in 19.13.		N/A
19.104.6	Blocked outlet		—
	To test blocked outlet conditions, when steady conditions are attained, the appliance outlet air opening is totally closed off and operation continued until maximum temperatures are determined.		N/A
	This test with the outlet air opening closed not be conducted on any unit with free air discharge openings located more than 1,2 m above the floor level when the unit is installed as intended.		N/A
	Temperatures not exceed the values in 19.13.		N/A
19.104.7	All appliances provided with supplementary air heaters and with free air discharge openings are subjected to the following test in each mode of operation.		N/A
19.104.8	Back up protection test		—
	If a self-resetting thermal cut-out operates during the tests of 19.104, then the self-resetting thermal cut-out by-passed and the tests of 19.104.4 through 19.104.7 repeated.		N/A
19.105	For dehumidifiers in which the compressor is enclosed by a non-metallic material which isolates it from the forced air stream providing air to the heat exchanger, the following test apply.		N/A
20	STABILITY AND MECHANICAL HAZARDS		—
20.1	Appliances having adequate stability		N/A
	Tilting test through an angle of 10°, appliance placed on an inclined plane/horizontal support, not connected to the supply mains; appliance does not overturn		N/A
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N/A
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N/A
	Fixed appliances that are only fixed into position by water piping, refrigerant piping or other piping are also subjected to this test.		N/A
	Such pipes are not connected to the appliance during this test.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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
	Enclosures that can be opened by overriding an interlock are considered to be detachable parts		N/A
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard by unexpected closure		N/A
	Not possible to touch dangerous moving parts with the test probe described		P
	Fixed appliances that are only fixed into position by water piping, refrigerant piping or other piping are also subjected to this test.		P
21	MECHANICAL STRENGTH		—
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	Checked by applying 3 blows to every point of the enclosure like to be weak, in accordance with test Ehb of IEC 60068-2-75, spring hammer test, with an impact energy of 0,5 J	(see appended table)	P
	The appliance shows no damage impairing compliance with this standard, and		P
	compliance with 8.1, 15.1 and clause 29 not impaired		P
	If doubt, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N/A
	If necessary, repetition of groups of three blows on a new sample		N/A
	Pressure vessels comply with the requirements of ISO 5149-2:2014, Subclause 4.4.		P
	The pressure test in Annex EE applies to parts other than pressure vessels		P
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
	For accessible parts made of particle foam material used as supplementary insulation or reinforced insulation, the following test is done without any consideration of the insulation thickness		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
21.101	Appliances using flammable refrigerants shall withstand the effects of vibration during transport.		P
	Where testing to ISO 13355:2016 is impractical due to limitations of available test facilities/equipment within the industry, the appliance shall be tested by a transport test representative of shipping mode such as truck, rail, air, and/or ocean. Truck transport test is mandatory. Rail, air, and/or ocean transport tests are optional. The product shall be transported for a distance of not less than 2 times the longest expected transportation route as determined by the manufacturer in consideration of the product marketplace and distribution. For truck transport, at least 3 categories of roads shall be used, representing the expected transportation route with at least 10 % of the total distance for each road category.		P
22	CONSTRUCTION		—
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled		N/A
22.2	Stationary appliance: means to ensure all-pole disconnection from the supply being provided:		—
	- a supply cord fitted with a plug, or		P
	- 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		P
	- 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 been placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1 mm		N/A
	Each pin subjected to a torque of 0,4 Nm; the pins are not rotating, unless		N/A
	rotating does not impair compliance with this standard		N/A

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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 0,1 μ F, the appliance being disconnected from the supply at the instant of voltage peak		P
	Voltage not exceeding 34 V (V)	8 V	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		N/A
	In case of doubt, test as described		N/A
	The electrical insulation shall not be affected by snow which might enter the appliance enclosure.		N/A
22.7	Adequate safeguards against the risk of excessive pressure in appliances containing liquid or gases or having steam-producing devices		N/A
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use		P
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	Oil in the compressors is compatible with the insulation.	P
22.10	Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance, if:		N/A
	- a non-self-resetting thermal cut-out is required by the standard, and		N/A
	- a voltage maintained non-self-resetting thermal cut-out is used to meet it		N/A
	Non-self-resetting thermal motor protectors have a trip-free action, unless		N/A
	they are voltage maintained		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
	Tests as described	50 N on enclosure	P
22.12	Handles, knobs etc. fixed in a reliable manner, if loosening result in a hazard	No such parts	NA
	Removing or fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible, if resulting in a hazard		N/A
	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		N/A
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		N/A
	If the part is removed and can be contained within the small parts cylinder, it is considered to be a choking hazard		N/A
22.13	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
	This requirement does not apply to the metallic fins of heat exchangers.		P
22.15	Storage hooks and the like for flexible cords smooth and well rounded		N/A
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands and no undue wear of contacts		N/A
	Cord reel tested with 6000 operations, as specified		N/A
	Electric strength test of 16.3, voltage of 1000 V applied		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N/A
22.18	Current-carrying parts and other metal parts resistant to corrosion		P
22.19	Driving belts not relied upon to provide the required level of insulation, unless	No driving belts used	N/A
	constructed to prevent inappropriate replacement		N/A
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless		N/A
	material used is non-corrosive, non-hygroscopic and non-combustible		N/A
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless	No such materials used	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 supported so that, in case of rupture or sagging, the heating conductor cannot come into contact with accessible metal parts nor give rise to a hazard.		N/A
	Bare heating elements not be used with wood or wood composite enclosures.		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		P
22.28	Metal parts of class II appliances conductively connected to gas pipes or in contact with water, separated from live parts by double or reinforced insulation		N/A
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		N/A
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
	the reinforced insulation consists of at least 3 layers		N/A
	An air layer not used as basic or supplementary insulation in a double insulation system if likely to be bridged by leaking liquid		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.34	Shafts of operating knobs, handles, levers etc. not live, unless		N/A
	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		N/A
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of a failure of basic insulation, are either adequately covered by insulation material or their accessible parts are separated from their shafts or fixings by supplementary insulation		N/A
	This requirement does not apply to handles, levers and knobs on stationary appliances and cordless appliances, other than those of electrical components, provided they are reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		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
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	If the appliance cannot operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation being fitted with a switch for stopping the operation. The actuating member of the switch being easily visible and accessible		N/A
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components		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		P
	Capacitors checked by the tests for class Y capacitors in IEC 60384-14		N/A
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N/A
22.44	Appliances not having an enclosure that is shaped or decorated like a toy		P
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.3 due to deformation as a result of an external force applied to the enclosure		P
22.46	For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1		N/A
	If the protective electronic circuit software is a part of the normal operation control, inspection of software shall be limited to relevant source code of safety controls or related software controls.		N/A
	Software that contains measures to control the fault/error conditions specified in table R.2 is to be specified in parts 2 for particular constructions or to address specific hazards		N/A
	These requirements are not applicable to software used for functional purpose or compliance with clause 11		N/A
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use		N/A
	No leakage from any part, including any inlet water hose		N/A
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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		P
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		P
22.51	There is a control on the appliance manually adjusted to the setting for remote operation before the appliance can be operated in this mode		N/A
	There is a visual indication showing that the appliance is adjusted for remote operation		N/A
	These requirements not necessary on appliances that can operate as follows, without giving rise to a hazard:		—
	- continuously, or		P
	- automatically, or		P
	- remotely		P
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		N/A
	- reduction in heat output; or		N/A
	- audible and visible feedback		P
22.56	Detachable power supply part provided with the part of class III construction		N/A
22.57	The properties of non-metallic materials do not degrade from exposure to UV-C radiation, as specified in annex T		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	This requirement does not apply to glass, ceramics or similar materials		N/A
22.101	Appliances intended to be fixed so designed that they can be securely fixed and maintained in position.		P
22.102.1	Appliances provided with supplementary air heaters provided with at least two thermal cut-outs. The thermal cut-out intended to operate first either a self-resetting thermal cut-out or a non-self-resetting thermal cut-out; the other thermal cut-out shall be a non-self-resetting thermal cut-out.		N/A
22.102.2	Appliances provided with supplementary water heaters incorporate a non-self-resetting thermal cut-out, providing all-pole disconnection that operates separately from water thermostats. However, for appliances intended to be connected to fixed wiring, the neutral conductor need not be disconnected.		N/A
22.102.3	Thermal cut-outs of the capillary type shall be so designed that the contacts open in the event of leakage from the capillary tube.		N/A
22.103	The sensing and switching elements of electromechanical non-self-resetting cut-outs functionally independent of other control devices.		N/A
	If the switching element of a non-self-resetting cut-out is operating a relay or contactor, the relay or contactor also be operated by other control devices. Protective electronic circuits are covered by Clause 19.		N/A
22.104	Containers of sanitary hot water heat pumps withstand the water pressure occurring in normal use.		N/A
	0,15 MPa in open containers		N/A
	twice the permissible excessive operating maximum allowable pressure for closed containers;		N/A
22.105	In the case of closed containers of sanitary hot water heat pumps, the formation of an air or vapour cushion of more than 2 % of the capacity, but not more than 10 %, as a maximum, provided.		N/A
22.106	Pressure-relief devices, whether incorporated in the container of sanitary hot water heat pumps or supplied separately, shall prevent the pressure in the container from exceeding the maximum allowable pressure by more than 0,1 MPa.		N/A
22.107	The outlet system of open containers of sanitary hot water heat pumps shall be free from obstructions that could limit the water flow to such an extent that the pressure in the container would exceed the maximum allowable pressure.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Vented containers of sanitary hot water heat pumps constructed that the container is always open to the atmosphere through an aperture of at least 5 mm in diameter or 20 mm ² in area, with a width of at least 3 mm.		N/A
22.108	Storage tanks of sanitary hot water heat pumps shall be resistant to vacuum pressure impulses which can occur in normal use.		N/A
22.109	Wiring connected to a non-self-resetting thermal cut-out designed to be replaced after its operation secured that replacement of the thermal cut-out itself or to a heating element assembly on which the thermal cut-out is mounted will not damage other connections or internal wiring.		N/A
22.110	Non-self-resetting thermal cut-outs designed to be replaced after their operation open the circuit in the intended manner without short-circuiting live parts of different potential and without causing live parts to come into contact with the enclosure.		N/A
22.112	The construction of the refrigerating system shall comply with the requirements of ISO 5149-2:2014, Subclauses 4.2, 4.3, 5.2.1, 5.2.2, 5.2.4, 5.2.5, 5.2.15, 5.2.6.1, 5.2.6.3, 5.2.7, 5.2.8, 5.2.9.1, 5.2.9.3, and 5.2.9.4. and ISO 5149-2:2014/AMD1:2020, Subclauses 4.1, 5.2.3, 5.2.9.2		P
22.113	When a flammable refrigerant is used, refrigerant tubing piping protected or enclosed to avoid mechanical damage.		P
	The refrigerant piping protected to the extent that it will not be handled or used for carrying during moving of the appliance.		P
	Refrigerant piping located within the appliance enclosure is considered to be protected from mechanical damage.		P
22.114	When a flammable refrigerant is used, low temperature solder alloys, such as lead/tin alloys, not be used for pipe connections or any other refrigerant pressure containing purposes.		P
22.115	The refrigerant charge (mc) in each refrigerating system employing flammable refrigerant shall not exceed m3 as defined in Annex GG.		P
	The construction of the refrigerating system using flammable refrigerants comply with the requirements in Annex GG.		P
22.116	Arcs and sparks from electric components		—

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Clause	Requirement + Test	Result - Remark	Verdict
22.116.1	Appliances using flammable refrigerants shall be constructed so that any leaked refrigerant will not flow or stagnate so as to cause a fire or explosion hazard in areas within the appliance or connected ducts where electrical components, which could be a source of ignition and which could function during normal operation or as a result of a leak, are located.		P
	Separate components, such as thermostats, which are charged with less than 0,5 g of a flammable gas are not considered to cause a fire or explosion hazard in the event of leakage of the gas within the component itself.		P
	Electrical components, which are potential ignition sources that could function under normal operation or as a result of a leak, are not considered a source of ignition if they comply with at least one of the following requirements:		—
	a) not be located in an area where a potentially flammable gas mixture will accumulate as demonstrated by the test of Annex FF;		N/A
	b) have equipment protection level according to 22.116.2;		N/A
	c) are sealed components in compliance with the tests of 22.116.3, and protected from impact by the appliance enclosure;		N/A
	d) are located in an enclosure which complies with IEC 60079-15:2017, Clauses 7 through 10, for restricted breathing enclosures suitable for use with group IIA gases or the refrigerant used;		P
	e) are located in an enclosure which complies with Annex NN. Applicable to appliances with A2L refrigerants only;		N/A
	f) are in compliance with Annex JJ. Applicable to appliance with A2L refrigerants only		N/A
	g) are in compliance with 22.116.4. Applicable to appliance with A2L refrigerants only;		N/A
	h) electrostatic air cleaners or similar devices tested and found to comply with 22.116.5. Applicable to appliance with A2L refrigerants only;		N/A
	i) refrigerant sensors tested and found to comply with Clause LL.11.		N/A
22.116.2	Components are not considered to be ignition sources if they comply with the requirements for equipment protection level Ga, Gb, or Gc as defined in IEC 60079-14 for the refrigerant used in the appliance or the relevant gas group (IIA, IIB, or IIC) to which the refrigerant belongs. However, the following requirements do not apply:		—
	– marking requirements of the applicable standard in IEC 60079 (all parts)		N/A
	– the impact tests of IEC 60079-0		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	– the IP test of IEC 60079-0;		N/A
	– the drop test of IEC 60079-0;		N/A
	– the creepage and clearance requirements in IEC 60079-7.		N/A
22.116.3	Three samples of the component conditioned in a climate chamber for 168 h at the maximum operating temperature during the test of Clause 11 plus 12 K, but not less than 75 °C. This conditioning is followed by 24 h at the minimum operating temperature during the test of Clause 11 reduced by at least 5 K.		N/A
	The test temperature in the climate chamber maintained within 2 K for the duration of the test.		N/A
	The components shall be stabilized at a temperature of 25 °C. The entire components then be rapidly immersed in water at a temperature of (50 ± 2) °C to a depth of at least 25 mm below the surface for at least 60 s.		N/A
	No bubbles emerge from the inside of the samples during this test		N/A
22.116.4	For A2L refrigerants, devices capable of 100 000 cycles per Clause 24, switching devices AC loads in compliance with all one of the following are not considered a potential ignition source:		—
	– for resistive loads where the impedance has a power factor higher than 0,99: Breaking current per contact is not more than 48A during normal operation;		N/A
	– for inductive loads where the power factor is not more than 0,99, the apparent power (S) of the switched inductive electrical load (Le) per phase in kVA is less than or equal to:		—
	• $Le = 5 \times (6,7/Su)^4$ when breaking all phases of a 3 phase load;		N/A
	• $Le = 2,5 \times (6,7/Su)^4$ all others.		N/A
22.116.5	For appliances with A2L refrigerants, electrostatic air cleaners and similar devices which can produce electrical arcing during normal operation that could ignite the refrigerant used, and which are installed in the unit airstream or connecting ducts, are not considered as a potential ignition source if the airflow is monitored and the energy source of the electric arcing is switched off when the airflow is below the minimum airflow according to Annex GG Clause GG.9.		N/A
22.116.6	For the purpose of determining the maximum quenching diameter (dq) in Annex JJ and the maximum allowable switched inductive electrical load Le (see 22.116.4), the effect of humidity on burning velocity (Su) taken into consideration.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The burning velocity (Su) shall be the highest value of		—
	– as specified in ISO 817; or		N/A
	– as measured in humid air at 27 °C ± 0,5 °C dew point at 101,3 kPa containing 21,0 % ± 0,1 % O ₂ excluding water vapour determined at the nominal composition as specified in ISO 817.		N/A
	The burning velocity (Su) at 27 °C dew point may be determined by extrapolation of the measurement at 23 °C and 50 % relative humidity and the burning velocity (Su) as provided by ISO 817.		N/A
	The extrapolation based on the measured value increased by the measurement uncertainty to the burning velocity (Su) at 23 °C and 50 % relative humidity.		N/A
	If the burning velocity (Su) is not measurable at dry condition, the burning velocity shall be measured at 27 °C dew point.		N/A
22.117	Hot surfaces		P
22.117.1	Temperatures on surfaces that can be exposed to leakage of flammable refrigerants in excess of 25 % of LFL as determined in Annex FF not exceed the maximum allowable surface temperature given in Annex BB.		P
	For A2 and A3 refrigerants not listed in Annex BB, the maximum allowable surface temperature is the AIT.	Measured surface temperature: _____ (°C)	N/A
	For A2L refrigerants not listed in Annex BB, the maximum allowable surface temperature is determined by the higher of AIT or, if tested per Annex KK, the hot surface ignition temperature reduced by 100 K	Measured surface temperature: _____ (°C)	N/A
	Surfaces in compliance with 22.117 not be considered a potential ignition source.		P
	Refrigerant sensors tested and found to comply with Clause LL.11 are considered to comply with 22.117.		N/A
22.117.2	Temperatures on surfaces that can be exposed to leakage of A2L refrigerants may exceed the maximum allowable surface temperature in case of loss of airflow when all the following applies:		—
	- the temperatures are not exceeding the maximum allowable surface temperature with the minimum airflow;		N/A
	- the airflow is supervised and the heat source of the hot surface is switched off, when the airflow is below the minimum airflow.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.117.3	Open source of ignition, including open flames, pilot flames, direct spark ignition or hot surface ignition or other similar sources of ignition in the combustion air-stream, if the combustion air is drawn from an unventilated space in which leaked refrigerant can enter through the combustion air intake, are allowed, when these appliances are provided with a flame arrest or equivalent to ensure that in the event of an ignition, the flame will not propagate.		N/A
22.118	<p>Joints made in installation between parts of refrigerating system, with at least one part charged, made in accordance with following:</p> <ul style="list-style-type: none"> - A brazed, welded, or mechanical connection be made before opening the valves to permit refrigerant to flow between the refrigerating system parts. A vacuum valve provided to evacuate the interconnecting pipe and/or any uncharged refrigerating system part - Mechanical connectors used indoors comply with ISO 14903. When mechanical connectors are reused indoors, sealing parts renewed. When flared joints are reused indoors, the flare part re-fabricated. - Refrigerant tubing protected or enclosed to avoid damage Flexible refrigerant connectors (such as connecting lines between the indoor and outdoor unit) that can be displaced during normal operations protected against mechanical damage. 		—
			N/A
			N/A
			N/A
			N/A
22.119	Condensing units and evaporating units are equipped with a pressure limiting device or equivalent to assure that the equipment does not exceed the maximum allowable pressure.		N/A
	For partial units, the interconnection circuits for signal communication between each unit be of the same type.		N/A
	SELV level connection is recommended.		N/A
22.120	Partial units provided with a means of connection to the supply mains and not be powered by an electrical circuit from another appliance.		N/A
22.121	Leak detection system sensor location		—
22.121.1	For the installation condition of appliances using an A2L refrigerant and where a leak detection system is applied to fulfil the requirements of Annex GGor for the purpose of limiting releasable charge, the refrigerant sensor:		—
	- within the unit for appliances connected via an air duct system to one or more rooms,		N/A
	- within the ventilated enclosure if in compliance with Clause GG.4,		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	– within the unit where release height h_0 as determined in Clause GG.2 is not more than 1,5 m,		N/A
	– where the release height h_0 as determined in Clause GG.2 is more than 1,5 m, the refrigerant sensor may be located within		—
	• the unit, or		N/A
	• 100 mm or less directly below the unit, or		N/A
	• remote located within 300 mm above the floor. If a remote located refrigerant sensor is specified by the manufacturer, the instructions shall state that the refrigerant sensor located within		N/A
	1)..... 10 m horizontal distance in line sight of the unit and on a wall within the room in which the unit is installed, or		N/A
	2)..... 7 m, if not in line sight of the unit, and on a wall within the room in which the unit is installed. The distance from the unit to the sensor shall be measured as the shortest horizontal unobstructed path between the unit and the nearest refrigerant sensor.		N/A
	For installations with field applied mechanical joints which are exposed in the occupied space, the instructions state that a refrigerant sensor be located:		—
	- remote located within 2 m horizontal distance in line of sight of the unit and on a wall within the room in which the unit is installed; and		N/A
	- 100 mm above the floor where h_0 is not more than 300 mm from the floor; or		N/A
	- 300 mm above the floor where h_0 is greater than 300 mm from the floor.		N/A
	The following mechanical joints not require that sensor:		—
	- mechanical joints in compliance with ISO 14903;		N/A
	- joints in enclosures which vent to the unit or to the outside		N/A
	– joints in enclosures which vent to a room with a minimum room area as specified in GG.2.1		N/A
22.121.2	For the installation condition of appliances using an A2 or A3 refrigerant and where a leak detection system is applied to fulfil the requirements of Annex GG or for the purpose of limiting releasable charge, the refrigerant sensor within or part of the unit.		N/A
	For appliances with ventilated enclosure in compliance with Clause GG.4, the refrigerant sensor within the ventilated enclosure.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	For installations with field applied joints which are exposed in the occupied space, these joints fulfil at least one of the following:		—
	– mechanical joints in compliance with ISO 14903;		N/A
	– welded or brazed joints;		N/A
	– joints in enclosures which vent to the unit or to the outside.		N/A
22.122	For refrigerant detection systems that are required by this standard for flammable refrigerants, the following applies:		—
	– the output signal of the refrigerant detection system activate the actions required to comply with Annex GG in the event of a leak;		N/A
	– where a refrigerant detection system refrigerant sensor is used to activate safety measures in multiple units in the same room, all of the detection system activated safety measures applied to those units in the room which rely on that refrigerant detection system;		N/A
	– If a refrigerant detection system provides notification to the user that replacement of the refrigerant sensor is required, then resetting this notification only be possible when the refrigerant sensor has been replaced.		N/A
	Refrigerant detection system comply with Annex LL.		N/A
22.123	For appliances using a flammable refrigerant according to Clause GG.9, which include a separate section with refrigerant containing components except pipes (e.g. compressors, condensers), and is located in a room smaller than Amin per Clause GG.2, that section:		—
	– not be isolated from the indoor air stream, where a leak will be detected, or		N/A
	– be ventilated to the outdoors in compliance with Clause GG.4, or		N/A
	– be naturally ventilated to outdoors.		N/A
22.124	Void		—
22.125	Refrigerating systems that fulfil all of the following conditions be considered enhanced tightness refrigerating systems: (IEC 60335-2-40:2018)		—
	a) compressors, pressure relief devices and pressure vessels of the refrigerating system located in locations other than the occupied space,		N/A
	b) refrigerant distribution assemblies meet all applicable requirements of this standard,		N/A
	c) refrigerating systems shall use only permanent joints indoors except for site-made joints directly connecting the indoor unit to the refrigerant piping, or factory-made mechanical joints in compliance with ISO 14903,		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	d) refrigerant containing parts in indoor units protected from damage in the event of catastrophic failure of moving parts, e.g. fans, belts,		N/A
	e) systems where the equipment refrigerant containing pipes in the occupied space in question are installed in such a way that they are protected against accidental damage,		N/A
	f) the refrigerating system of each indoor unit tightness tested at the factory with detection equipment with a capability of 3 grams per year of refrigerant or better less under a pressure of at least 0,25 times the maximum allowable pressure. No leak detected,		N/A
	g) vibrations exceeding 0,30 G RMS, when measured with a low pass filter at 200 Hz, are not allowed in the refrigerant containing parts in the occupied space under normal operation.		N/A
	h) indoor heat exchangers protected from damage in the event of freezing.		N/A
	i) the maximum speed of the indoor fan, in normal operation, less than 90 % of the maximum allowable fan speed as specified by the manufacturer of the fan wheel. If the manufacturer does not specify a maximum allowable fan speed, then the fan wheel tested as follows:		—
	The maximum allowable fan speed established by running continuously at 120 % of maximum speed for 10 days. There shall be no structural failure of the fan.		N/A
	If non-metallic fan wheels have a minimum thermal index rating of 65 °C per ISO 2578, preconditioning is not required.		N/A
	If no thermal index rating for the material is available, specimens shall be aged at 90 °C for 168 h. The samples shall not have more than a 50-percent reduction of the unconditioned property values for items 1) to 4) below		—
	1) tensile strength in accordance with ISO 527-3,		N/A
	2) flexural strength in accordance with ISO 178,		N/A
	3) Izod impact in accordance with ISO 180		N/A
	4) tensile impact in accordance with ISO 8256		N/A
22.126	Germicidal lamps are limited to low pressure mercury lamps with a quartz envelope having a continuous spectral irradiance at 254 nm.		N/A
22.127	Appliance enclosure, UV-C lamps and UV-C barriers be located in such a manner that the UV-C spectral irradiance is not emitted outside the unit into an occupied space at a level exceeding the irradiance limit specified in 32.101.1.		N/A
	Appliance indoor airflow inlet and outlet be considered as possible radiation paths. The unit filters are not considered UV-C barriers.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.128	For appliances that employ UV-C germicidal lamp systems and which have doors and/or panels that provide direct access to an area within the appliance where the measured UV-C spectral irradiance is greater than 1,7 $\mu\text{W}/\text{cm}^2$, the doors and/or panels be equipped with an interlock device that terminates the power to the lamps when opened.		N/A
	If a switch is used to de-energize the UV-C lamps so as to meet the requirement, it is not possible to operate the switch with test probe B of IEC 61032.		N/A
22.129	For user maintenance access areas, the UV-C spectral irradiance not exceed the limit specified in 32.101.2 with the access panels opened or removed as needed to perform the required user maintenance.		N/A
	Panels that are opened or removed to perform user maintenance are required to be closed or put back in place for proper operation of the appliance.		N/A
22.130	If the replacement of the UV-C lamp is allowed by the user, the appliance shall be constructed so that		—
	- the replacement of the UV-C lamp is easily possible		N/A
	- if screws or components are omitted or incorrectly positioned or fastened, the appliance is rendered inoperable or manifestly incomplete.		N/A
22.131	Appliances that employ refrigerants in a transcritical refrigerating system are equipped with a pressure-limiting device that operates no greater than the maximum allowable pressure taking into account the tolerance of the pressure-limiting device.		N/A
22.132	Safety shut-off valves for flammable refrigerants for the purposes of limiting the releasable charge		—
	Safety shut-off valves shall default to fully closed position when the appliance is de-energised for any reason other than failure of the supply mains		N/A
	Safety shut-off valves that are activated by a leak detection system shall have either		—
	– manual operation for resetting which requires the aid of a tool, or		N/A
	– automatically reset after the leak detection system has not detected refrigerant for at least 2 hours.		N/A
	For refrigerating systems using A2 or A3 refrigerants, safety shut-off valves shall be factory fitted in the appliance.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The total seat leak rate for the refrigerant used for all the safety shut-off valves that reduce the leak into the same space no more than msv.		N/A
	The safety shut-off valves marked with information for the identification of the valve in case of replacement:		—
	– means for identification of the safety shut-off valves for facilitating correct replacement, and		N/A
	– arrow indicating the direction of flow, when applicable.		N/A
	The closing of safety shut-off valves in liquid refrigerant lines not result in pressures exceeding the maximum allowable pressure.		N/A
22.133	Particle foam material not be used outdoors without protective cover of metal or rigid plastic material if the appliance is accessible to the general public.		N/A
22.134	Appliances constructed so that particle foam material expanded polypropylene is separated from metallic parts containing cobalt, manganese or copper if operating at a temperature higher than 80 °C.		N/A
	However, this requirement is not applicable for particle foam material parts when a deterioration of 3 mm at the contact point will not cause the appliance to fail to comply with this standard. If the separation is provided by an air gap, it at least 3 mm.		N/A
23	INTERNAL WIRING		—
23.1	Wireways smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		P
	Wire holes in metal well-rounded or provided with bushings		P
	Wiring effectively prevented from coming into contact with moving parts		P
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges		N/A
	Beads inside flexible metal conduits contained within an insulating sleeve		N/A
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		P
	Flexible metallic tubes not causing damage to insulation of conductors	No such parts used	N/A
	Open-coil springs not used	No such parts used	P
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another	No such parts used	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	No damage after 10 000 flexings for conductors flexed during normal use, or		N/A
	100 flexings for conductors flexed during user maintenance		P
	Electric strength test of 16.3, 1000 V between live parts and accessible metal parts		P
	Not more than 10 % of the strands of any conductor broken, and		P
	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		P
	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.		P
	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		P
23.7	The colour combination green/yellow only used for earthing conductors		P
23.8	Aluminium wires not used for internal wiring	No aluminium wire used.	N/A
23.9	Stranded conductors not consolidated by soldering where they are subjected to contact pressure, unless	No such constructions	N/A
	the contact pressure is provided by spring terminals		N/A
23.10	The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, at least equivalent to that of light polyvinyl chloride sheathed flexible cord (60227 IEC 52)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
23.101	Wires protected if they can be damaged by contact with refrigerant piping.		N/A
24	COMPONENTS		—
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		N/A
	alternatively acc. to IEC 60730-1, and meeting the additional requirements in IEC 60335-1		N/A
	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		N/A
	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		N/A
	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		N/A
	For components mentioned in 24.1.1 to 24.1.9 no additional tests specified in the relevant component standard are necessary other than those specified in 24.1.1 to 24.1.9		P
	Components not tested and found to comply with relevant IEC standard and components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Lampholders and starterholders that have not being tested and found to comply with the relevant IEC standard, tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant IEC standard		N/A
	No additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of IEC 60320-1 and IEC 60309		N/A
	Motor-compressors		—
	– comply with IEC 60335-2-34 (including its Annex AA), or		P
	– comply with IEC 60335-2-34 (without Annex AA) and comply with Clause 11 of this standard, or		N/A
	– comply with this standard and in addition shall comply with IEC 60335-2-34:2021, 22.9		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		P
24.1.3	Switches comply with IEC 61058-1, the number of cycles of operation being at least 10 000		N/A
	If they have to be tested, they are tested according to annex H		N/A
	If the switch operates a relay or contactor, the complete switching system is subjected to the test		N/A
	If the switch only operates a motor 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:.....10 000		N/A
	- temperature limiters:1 000		N/A
	- self-resetting thermal cut-outs:.....3000		N/A
	- voltage maintained non-self-resetting thermal cut-outs:.....1 000		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- other non-self-resetting thermal cut-outs:300		N/A
	- timers:.....3 000		N/A
	- energy regulators:10 000		N/A
	- thermostats which control motor-compressor 100 000		N/A
	- motor-compressor starting relays..... 100 000		N/A
	- automatic thermal motor-protectors for hermetic and semi-hermetic type motor-compressors (not less than number of operations during locked rotor test).....min 2000		N/A
	- manual reset thermal motor-protectors for hermetic and semi-hermetic type motor-compressors 50		N/A
	- other automatic thermal motor-protectors ... 2000		N/A
	- other manual reset thermal motor-protectors . 30		N/A
	- refrigerant detection systems self-resetting .. 300		N/A
	- refrigerant detection systems non self-resetting 30		N/A
	- electromechanical proof of airflow control 100 000		N/A
	- self-resetting electrical pressure-limiting device 3 000		N/A
	- non-self-resetting electrical pressure-limiting device 300		N/A
	The number of cycles for controls operating during clause 11 need not be declared, if the appliance meets the requirements of this standard when they are short-circuited		N/A
	Thermal motor protectors are tested in combination with their motor under the conditions specified in annex D		N/A
	For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, the degree of protection declared for subclause 6.5.2 of IEC 60730-2-8 is IPX7		N/A
	Thermal cut-outs of the capillary type comply with the requirements for type 2.K controls in IEC 60730-2-9		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

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Clause	Requirement + Test	Result - Remark	Verdict
24.1.6	Small lamp holders similar to E10 lampholders comply with IEC 60238, the requirements for E10 lampholders being applicable		N/A
24.1.7	For remote operation of the appliance via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151		N/A
24.1.8	The relevant standard for thermal links is IEC 60691		N/A
	Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of clause 19		N/A
24.1.9	Contactors and relays, other than motor starting relays, tested as part of the appliance		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.....:	100000 cycles	P
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
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		N/A
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance, and used accordingly		P
	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load		P

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Clause	Requirement + Test	Result - Remark	Verdict
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42 V		N/A
	In addition, the motors comply with the requirements of annex I		N/A
24.7	Detachable hose-sets for connection of appliances to the water mains comply with IEC 61770		N/A
	They are supplied with the appliance		N/A
	Appliances intended to be permanently connected to the water mains not connected by a detachable hose-set		N/A
24.8	Motor running capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with a motor winding, not causing a hazard in event of a failure		P
	One or more of the following conditions are to be met:		—
	- the capacitors are of class S2 or S3 according to IEC 60252-1		P
	- the capacitors are housed within a metallic or ceramic enclosure		N/A
	- the distance of separation of the outer surface to adjacent non-metallic parts exceeds 50 mm		N/A
	- adjacent non-metallic parts within 50 mm withstand the needle-flame test of annex E		N/A
	- adjacent non-metallic parts within 50 mm classified as at least V-1 according to IEC 60695-11-10		N/A
24.101	Replaceable parts of thermal control devices identified by marking		N/A
24.102	Pressure-limiting devices used in transcritical refrigerating systems complies with IEC 60730-2-6 and		—
	- be of type 2A or 2B;		N/A
	- have a trip free mechanism of type 2 J		N/A
	- the deviation and drift not exceed + 0 %.		N/A
25	SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS		—
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		—
	- supply cord fitted with a plug, 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

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Clause	Requirement + Test	Result - Remark	Verdict
	- pins for insertion into socket-outlets		N/A
	Supply cord fitted with plug provided, if:		—
	- supply cord with a plug is for indoor use only		P
	- marked with rating of 25 A or less and		P
	- complies with code requirements of country where it will be used		P
	Appliance inlet not allowed		P
25.2	Appliance not provided with more than one means of connection to the supply mains		P
	Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown		N/A
25.3	Appliance intended to be permanently connected to fixed wiring provided with one of the following means for connection to the supply mains:		—
	- a set of terminals allowing the connection of a flexible cord		N/A
	- a fitted supply cord		P
	- a set of supply leads accommodated in a suitable compartment		N/A
	- a set of terminals for the connection of cables of fixed wiring, cross-sectional areas specified in 26.6, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N/A
	- a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate types of cable or conduit, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N/A
	For a fixed appliance constructed so that parts can be removed to facilitate easy installation, this requirement is met if it is possible to connect the fixed wiring without difficulty after a part of the appliance has been fixed to its support		N/A
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, 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

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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)		P
	- polyvinyl chloride sheathed. Not used if they are likely to touch metal parts having a temperature rise exceeding 75 K during the test of clause 11		—
	- light polyvinyl chloride sheathed cord (60227 IEC 52), for appliances not exceeding 3 kg		N/A
	- ordinary polyvinyl chloride sheathed cord (60227 IEC 53), for other appliances		P
	- heat resistant polyvinyl chloride sheathed. Not used for type X attachment other than specially prepared cords		—
	- heat-resistant light polyvinyl chloride sheathed cord (60227 IEC 56), for appliances not exceeding 3 kg		N/A
	- heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), for other appliances		N/A
	- halogen-free, low smoke, thermoplastic insulated and sheathed		—
	- light duty halogen-free low smoke flexible cable (62821 IEC 101) for circular cable and (62821 IEC 101f) for flat cable		N/A
	- Ordinary duty halogen-free low smoke flexible cable (62821 IEC 102) for circular cable and (62821 IEC 102f) for flat cable		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
	Supply cords for outdoor use not lighter than polychloroprene sheathed flexible cord (60245 IEC 57)		P
25.8	Nominal cross-sectional area of supply cords not less than table 11; rated current (A); cross-sectional area (mm ²).....:	Refer to user manual	P

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Clause	Requirement + Test	Result - Remark	Verdict
25.9	Supply cords not in contact with sharp points or edges		P
25.10	Supply cord of class I appliances have a green/yellow core for earthing		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
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		N/A
	If unsheathed supply cord, a similar additional bushing or lining is required, unless the appliance is		N/A
	class 0, or		N/A
	a class III appliance not containing live parts		N/A
25.14	Supply cords moved while in operation adequately protected against excessive flexing		N/A
	Flexing test, as described:		—
	- applied force (N).....:		N/A
	- number of flexings		N/A
	The test does not result in:		—
	- short-circuit between the conductors, such that the current exceeds a value of twice the rated current		N/A
	- breakage of more than 10% of the strands of any conductor		N/A
	- separation of the conductor from its terminal		N/A
	- loosening of any cord guard		N/A
	- damage to the cord or the cord guard		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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)	100 N, 0,35 Nm	P
	- other appliances: values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm).....		N/A
	Cord not damaged and max. 2 mm displacement of the cord	Cord displacement: 1,0 mm	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

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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 attachment	P
25.18	Cord anchorages only accessible with the aid of a tool, or		P
	Constructed so that the cord can only be fitted with the aid of a tool		N/A
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N/A
	Tying the cord into a knot or tying the cord with string not used		N/A
25.20	The conductors of the supply cord for type Y and Z attachment insulated from accessible metal parts	Type Y attachment	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		P
	2 N test to the conductor for portable appliances; no contact with accessible metal parts		P
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

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Clause	Requirement + Test	Result - Remark	Verdict
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
25.24	Interconnection cords not detachable without the aid of a tool if compliance with this standard is impaired when they are disconnected		N/A
25.25	Dimensions of pins that are inserted into socket-outlets compatible with the dimensions of the relevant socket-outlet.		N/A
	Dimensions of pins and engagement face in accordance with the dimensions of the relevant plug in IEC/TR 60083		N/A
26	TERMINALS FOR EXTERNAL CONDUCTORS		—
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		N/A
	Screws and nuts not used to fix any other component, except		N/A
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N/A
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone, unless		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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
26.6	Terminals for type X attachment and for connection of cables of fixed wiring suitable for connection of conductors with cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm ²).....:		N/A
	If a specially prepared cord is used, terminals need only be suitable for that cord		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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		P
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		P
	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	Type Y attachment, crimped connection 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
27	PROVISION FOR EARTHING		—
27.1	Accessible metal parts of class 0I and I appliances permanently and reliably connected to an earthing terminal or earthing contact of the appliance inlet		P
	Earthing terminals and earthing contacts not connected to the neutral terminal		P
	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		P
	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 ² , and		N/A
	- do not provide earthing continuity between different parts of the appliance, and		N/A
	- conductors cannot be loosened without the aid of a tool		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		P
	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		N/A
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N/A
	In the body of the earthing terminal is a part of a frame or enclosure of aluminium or aluminium alloys, precautions taken to avoid risk of corrosion		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
27.5	Low resistance of connection between earthing terminal and earthed metal parts		P
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided 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 Ω at the specified low-resistance test (Ω)	0,03 Ω	P
	If the ground continuity between system components meets the minimum values specified in 27.5, it is considered to meet the requirements without dedicated grounding conductors. (IEC 60335-2-40:2018)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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
28	SCREWS AND CONNECTIONS		—
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium		P
	Diameter of screws of insulating material min. 3 mm		N/A
	Screws of insulating material not used for any electrical connections or connections providing earthing continuity		N/A
	Screws used for electrical connections or connections providing earthing continuity screwed into metal		P
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N/A
	For type X attachment, screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw impairs basic insulation		N/A
	For screws and nuts; torque-test as specified in table 14.....:	(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		P
	This requirement does not apply to electrical connections in circuits of appliances for which:		—
	- 30.2.2 is applicable and that carry a current not exceeding 0,5 A		N/A
	- 30.2.3 is applicable and that carry a current not exceeding 0,2 A		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		P
	Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread		N/A
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer		N/A
	Thread-cutting, thread rolling and space threaded screws may be used in connections providing earthing continuity provided it is not necessary to disturb the connection:		—
	- in normal use,		N/A
	- during user maintenance,		N/A
	- when replacing a supply cord having a type X attachment, or		N/A
	- during installation		N/A
	At least two screws being used for each connection providing earthing continuity, unless		P
	the screw forms a thread having a length of at least half the diameter of the screw		N/A
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		P
	This requirement does not apply to screws in the earthing circuit if at least two screws are used, or		N/A
	if an alternative earthing circuit is provided		N/A
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if the connections are subjected to torsion		N/A
29	CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION		—
	Clearances, creepage distances and solid insulation withstand electrical stress		P
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), annex J applies		N/A
	The microenvironment is pollution degree 1 under type 1 protection		N/A
	For type 2 protection, the spacing between the conductors before the protection is applied is not less than the values specified in Table 1 of IEC 60664-3		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	These values apply to functional, basic, supplementary and reinforced insulation		N/A
	For motor-compressor not complying with IEC 60335-2-34, additions and modifications as specified (IEC 60335-2-40:2018)		P
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 1500 V 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
	A force of 2 N is applied to bare conductors, other than heating elements		N/A
	A force of 30 N is applied to accessible surfaces		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		P
	The values of table 16 or the impulse voltage test of clause 14 are applicable	(see appended table)	P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1,0 mm if the microenvironment is pollution degree 1		N/A
	Lacquered conductors of windings considered to be bare conductors		P
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16	(see appended table)	P

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Clause	Requirement + Test	Result - Remark	Verdict
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, using the next higher step for rated impulse voltage	(see appended table)	P
	For double insulation, with no intermediate conductive part between basic and supplementary insulation, clearances are measured between live parts and the accessible surface, and the insulation system is treated as reinforced insulation		N/A
29.1.4	Clearances for functional insulation are the largest values determined from:		—
	- table 16 based on the rated impulse voltage	(see appended table)	P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		N/A
	the microenvironment is pollution degree 3, or		P
	the distances can be affected by wear, distortion, movement of the parts or during assembly		P
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
	Lacquered conductors of windings considered to be bare conductors		P
	However, clearances at crossover points are not measured		N/A
	Clearance between surfaces of PTC heating elements may be reduced to 1 mm		P
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	(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 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

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Clause	Requirement + Test	Result - Remark	Verdict
	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		P
	- precautions taken to protect the insulation; pollution degree 1		P
	- insulation subjected to conductive pollution; pollution degree 3		P
	A force of 2 N is applied to bare conductors, other than heating elements		N/A
	A force of 30 N is applied to accessible surfaces		P
	In a double insulation system, the working voltage for both the basic and supplementary insulation is taken as the working voltage across the complete double insulation system		N/A
	Insulation located in airflow, pollution degree 3 unless		P
	insulation enclosed or located so that unlikely to be exposed to pollution due to normal use		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

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Clause	Requirement + Test	Result - Remark	Verdict
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
	- 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		P
	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		N/A
	Reinforced insulation have a thickness of at least 2 mm		P
29.3.2	Each layer of material withstand the electric strength test of 16.3 for supplementary insulation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Supplementary insulation consist of at least 2 layers		N/A
	Reinforced insulation consist of at least 3 layers		N/A
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N/A
	the electric strength test of 16.3		N/A
	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		P
29.3.4	Thickness of accessible parts of reinforced insulation consisting of a single layer not less than specified in table 19.....:		N/A
30	RESISTANCE TO HEAT AND FIRE		—
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	parts of thermoplastic material providing supplementary or reinforced insulation		P
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2		P
	External parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C).....:	(see appended table 30.1)	P
	Parts supporting live parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 125 °C, whichever is the higher; temperature (°C)	(see appended table 30.1)	P
	Parts of thermoplastic material providing supplementary or reinforced insulation tested at 25 °C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C)		N/A
30.2	Parts of non-metallic material resistant to ignition and spread of fire	(see appended table)	P
	This requirement does not apply to:		—
	parts having a mass not exceeding 0,5 g, provided the cumulative effect is unlikely to propagate flames that originate inside the appliance by propagating flames from one part to another, or		N/A
	decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance		N/A
	Compliance checked by the test of 30.2.1, and in addition:		N/A
	- for attended appliances, 30.2.2 applies		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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
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		N/A
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 850 °C		N/A
30.2.3.2	Parts of non-metallic material supporting connections, and		P
	parts of non-metallic material within a distance of 3 mm,		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		P
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	However, the glow-wire test of 750 °C or 650 °C as appropriate, is not carried out on parts of material fulfilling both or either of the following classifications:		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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:		—
	- 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

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Clause	Requirement + Test	Result - Remark	Verdict
	- parts shielded by a flame barrier that meets the needle-flame test of annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
30.2.4	Base material of printed circuit boards subjected to the needle-flame test of annex E	(see appended table 30.2/30.2.4)	P
	Test not applicable to conditions as specified.....:		N/A
30.101	The ball pressure test for particle foam material is carried out using the apparatus specified in IEC 60695-10-2:2014, Clause 5 using the loading device shown in Figure 1a with additional dimensions and shape as shown in Figure 105.		N/A
	The size of test specimen at least 60 mm × 60 mm.		N/A
	The weight applied to the outer surface of the part, and not to a cut-away exposing an interior substrate for the purposes of sample preparation.		N/A
	The test specimen stored for at least 24 h before the test in an atmosphere having a temperature between 15 °C and 35 °C and a relative humidity between 45 % and 75 %.		N/A
	Place the test specimen in the approximate centre of the test specimen support ensuring that its upper surface is horizontal.		N/A
	Gently lower the pressure ball of the loading device on to the approximate centre of the test specimen.		N/A
	Ensure that no conditions exist that will cause the pressure ball to move other than in a downward direction during the test.		N/A
	The installation of the test specimen and application of the weight performed within 30 s.		N/A
	The test chamber return to the specified temperature (± 2 °C) within 5 min and without any overshoot exceeding 5 °C.		N/A
	The test specimen with the loading device remain for a period of 60 +20 min in the test chamber.		N/A
	The thickness of the sample at the point of contact with the loading device shall be measured before and immediately after the conditioning in the chamber according to Figure 106.		N/A
	The test performed at a temperature (40 ± 2) K above the maximum temperature rise measured at accessible surface during the test in Clause 11, but not less than 75 °C.		N/A
	However, for parts providing supplementary insulation or reinforced insulation, the test performed at a temperature, which is (25 ± 2) K above the maximum temperature rise measured during the test in Clause 19, if this is higher.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The temperature rises of Clause 19 are not considered, provided the tests of Clause 19 are terminated by a non-self-resetting protective device. The resetting of the non-self-resetting protective device shall require removal of a cover or the using of a tool.		N/A
	After the test, the thickness of the material not less than 50 % of the original material thickness but not less than 4 mm.		N/A
31	RESISTANCE TO RUSTING		—
	Relevant ferrous parts adequately protected against rusting		N/A
	Tests specified in part 2 when necessary		N/A
	Salt mist test of IEC 60068-2-52, severity 2		N/A
	Before test, coatings are scratched by means of a harden steel pin as specified		N/A
	Five scratches made at least 5 mm apart and at least 5 mm from the edges		N/A
	Appliance not deteriorated to such an extent that compliance with clause 8 and 27 is impaired		N/A
	Coating not be broken and not loosened from the metal surface		N/A
32	RADIATION, TOXICITY AND SIMILAR HAZARDS		—
	Appliance does not emit harmful radiation or present a toxic or similar hazard due to their operation in normal use		P
	Compliance is checked by the limits or tests specified in part 2, if relevant		P
32.101	UV-C irradiance test		N/A
32.101.1	For the occupied space outside the unit, a test be performed to determine the UV-C spectral irradiance.		N/A
	Emissions from the equipment not exceed a UV-C spectral irradiance limit of 0,2 $\mu\text{W}/\text{cm}^2$		N/A
32.101.2	For areas inside the unit that are accessible for anticipated user maintenance and are not equipped with the interlock required by Subclause 22.128, there be no UV-C spectral irradiance greater than 1,7 $\mu\text{W}/\text{cm}^2$		N/A
	UV-C spectral irradiance is measured at any point of accessibility required for user maintenance.		N/A
	When determining user accessibility, consideration should be given to the maximum exposure time of 60 min/day at 1,7 $\mu\text{W}/\text{cm}^2$ spectral irradiance that the user would experience in performing his duties.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Compliance is determined by measuring the UV-C irradiance per IEC 62471:2006, Clause 5 and Annex B.		N/A
32.101.3	UV-C irradiance is measured at the location in Table 102		N/A
32.101.4	When conducting UV-C spectral irradiance tests:		—
	- the UV-C spectral irradiance measurements are conducted with a scanning spectroradiometer, or a narrow band range radiometer;		N/A
	- all panels and components are positioned or adjusted in the most severe position		N/A
	- removable air filters are removed;		N/A
	- measurements are made at the worst case location and angle of incidence;		N/A
	- the minimum specified duct and configuration, including any duct liners, specified by the manufacturer be in place and the measurements taken at the opening at the end of the duct.		N/A
B	ANNEX B - APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE RECHARGED IN THE APPLIANCE		—
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		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
	If the symbol for detachable supply unit is used, its meaning is explained		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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

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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
C	ANNEX C - AGEING TEST ON MOTORS		—
	Tests, as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding		N/A
	Test conditions as specified		N/A
E	ANNEX E - NEEDLE-FLAME TEST		—
	Needle-flame test carried out in accordance with IEC 60695-11-5, with the following modifications:		—
7	Severities		—
	The duration of application of the test flame is 30 s ± 1 s	PCB	P
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		P
9.2	The first paragraph does not apply		P
	If possible, the flame is applied at least 10 mm from a corner		P
9.3	The test is carried out on one specimen		P
	If the specimen does not withstand the test, the test may be repeated on two additional specimens, both withstanding the test		N/A
11	Evaluation of test results		—
	The duration of burning not exceeding 30 s		P
	However, for printed circuit boards, the duration of burning not exceeding 15 s		P
F	ANNEX F - CAPACITORS		—
	Capacitors likely to be permanently subjected to the supply voltage, and used for radio interference suppression or voltage dividing, comply with the following clauses of IEC 60384-14, with the following modifications:		—
1.5	Terms and definitions		—
1.5.3	Class X capacitors tested according to subclass X2		N/A
1.5.4	This subclause is applicable		N/A
1.6	Marking		—

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Clause	Requirement + Test	Result - Remark	Verdict
	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		—
	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
G	ANNEX G - SAFETY ISOLATING TRANSFORMERS		—
	The following modifications to this standard are applicable for safety isolating transformers:		—
7	Marking and instructions		—
7.1	Transformers for specific use marked with:		—
	- name, trademark or identification mark of the manufacturer or responsible vendor		N/A
	- model or type reference		N/A
17	Overload protection of transformers and associated circuits		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		N/A
22	Construction		—
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		P
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		P
	For insulated winding wires complying with subclause 19.12.3 of IEC 61558-1 there are no requirements for clearances or creepage distances		P
	For windings providing reinforced insulation, the distance specified in item 2c of table 13 of IEC 61558-1 is not assessed		P
	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		P
H	ANNEX H - SWITCHES		—
	Switches comply with the following clauses of IEC 61058-1, as modified below:		—
	The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N/A
	Before being tested, switches are operated 20 times without load		N/A
8	Marking and documentation		—
	Switches are not required to be marked		N/A
	However, a switch that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference		N/A
13	Mechanism		—
	The tests may be carried out on a separate sample		N/A
15	Insulation resistance and dielectric strength		—
15.1	Not applicable		N/A
15.2	Not applicable		N/A
15.3	Applicable for full disconnection and micro-disconnection		N/A
17	Endurance		—
	Compliance is checked on three separate appliances or switches		N/A
	For 17.2.4.4, the number of cycles declared according to 7.1.4 is 10 000, unless		N/A

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

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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
M	ANNEX M - POLLUTION DEGREE		—
	The information on pollution degrees is extracted from IEC 60664-1		P
	Pollution		—
	The microenvironment determines the effect of pollution on the insulation, taking into account the macroenvironment		P
	Means may be provided to reduce pollution at the insulation by effective enclosures or similar		P
	Minimum clearances specified where pollution may be present in the microenvironment		P
	Degrees of pollution in the microenvironment		—
	For evaluating creepage distances, the following degrees of pollution in the microenvironment are established:		—
	- pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence		N/A
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected	For main PCB	P
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected	For other parts	P
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N/A
N	ANNEX N - PROOF TRACKING TEST		—

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Clause	Requirement + Test	Result - Remark	Verdict
	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 100 V, 175 V, 400 V or 600 V:	250 V	P
	The test is carried out on five specimens		P
	In case of doubt, additional test with proof voltage reduced by 25 V, 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
R	ANNEX R - SOFTWARE EVALUATION		—
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 validated in accordance with the requirements of this annex		N/A
R.1	Programmable electronic circuits using software		—
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 constructed so that the software does not impair compliance with the requirements of this standard		N/A
R.2	Requirements for the architecture		—
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 use measures to control and avoid software-related faults/errors in safety-related data and safety-related segments of the software		N/A
R.2.1.1	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.2 have one of the following structures:		—
	- single channel with periodic self-test and monitoring		N/A
	- dual channel (homogenous) with comparison		N/A
	- dual channel (diverse) with comparison		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 have one of the following structures:		—
	- single channel with functional test		N/A
	- single channel with periodic self-test		N/A
	- dual channel without comparison		N/A
R.2.2	Measures to control faults/errors		—
R.2.2.1	When redundant memory with comparison is provided on two areas of the same component, the data in one area is stored in a different format from that in the other area		N/A
R.2.2.2	Programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.2 and that use dual channel structures with comparison, have additional fault/error detection means for any fault/errors not detected by the comparison		N/A
R.2.2.3	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, means are provided for the recognition and control of errors in transmissions to external safety-related data paths		N/A
R.2.2.4	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the programmable electronic circuits incorporate measures to address the fault/errors in safety-related segments and data indicated in table R.1 and R.2 as appropriate		N/A
R.2.2.5	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, detection of a fault/error occur before compliance with clause 19 is impaired		N/A
R.2.2.6	The software is referenced to relevant parts of the operating sequence and the associated hardware functions		N/A
R.2.2.7	Labels used for memory locations are unique		N/A
R.2.2.8	The software is protected from user alteration of safety-related segments and data		N/A
R.2.2.9	Software and safety-related hardware under its control is initialized and terminates before compliance with clause 19 is impaired		N/A
R.3	Measures to avoid errors		—
R.3.1	General		—

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Clause	Requirement + Test	Result - Remark	Verdict
	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the following measures to avoid systematic fault in the software are applied		—
	Software that incorporates measures used to control the fault/error conditions specified in table R.2 is inherently acceptable for software required to control the fault/error conditions specified in table R.1		N/A
R.3.2	Specification		—
R.3.2.1	Software safety requirements:	Software Id:	N/A
	The specification of the software safety requirements includes the descriptions listed		N/A
R.3.2.2	Software architecture		—
R.3.2.2.1	The specification of the software architecture includes the aspects listed - techniques and measures to control software faults/errors (refer to R.2.2); - interactions between hardware and software; - partitioning into modules and their allocation to the specified safety functions; - hierarchy and call structure of the modules (control flow); - interrupt handling; - data flow and restrictions on data access; - architecture and storage of data; - time-based dependencies of sequences and data	Document ref. No:	N/A
R.3.2.2.2	The architecture specification is validated against the specification of the software safety requirements by static analysis		N/A
R.3.2.3	Module design and coding		—
R.3.2.3.1	Based on the architecture design, software is suitably refined into modules		N/A
	Software module design and coding is implemented in a way that is traceable to the software architecture and requirements		N/A
R.3.2.3.2	Software code is structured		N/A
R.3.2.3.3	Coded software is validated against the module specification by static analysis		N/A
	The module specification is validated against the architecture specification by static analysis		N/A
R.3.3.3	Software validation		—
	The software is validated with reference to the requirements of the software safety requirements specification		N/A
	Compliance is checked by simulation of:		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- input signals present during normal operation		N/A
	- anticipated occurrences		N/A
	- undesired conditions requiring system action		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

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

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Clause	Requirement + Test		Result - Remark			Verdict
4.3 Addressing (relevant to variable and invariable memory)	Stuck at	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A
5 Internal data path	Stuck at	Word protection with single bit redundancy	H.2.19.8.2			N/A
5.1 VOID						N/A
5.2 Addressing	Wrong address	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A
6 External communication	Hamming distance 3	Word protection with multi-bit redundancy, or CRC – single work, or Transfer redundancy, or Protocol test	H.2.19.8.1 H.2.19.4.1 H.2.18.2.2 H.2.18.14			N/A
6.1 VOID						N/A
6.2 VOID						N/A
6.3 Timing	Wrong point in time Wrong sequence	Time-slot monitoring, or scheduled transmission Time-slot and logical monitoring, or comparison of redundant communication channels by either: - reciprocal comparison - independent hardware comparator Logical monitoring, or time-slot monitoring, or Scheduled transmission	H.2.18.10.4 H.2.18.18 H.2.18.10.3 H.2.18.15 H.2.18.3 H.2.18.10.2 H.2.18.10.4 H.2.18.18			N/A
7 Input/output periphery	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N/A
7.1 VOID						N/A
7.2 Analog I/O 7.2.1 A/D and D/A-converter	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N/A
7.2.2 Analog multiplexer	Wrong addressing	Plausibility check	H.2.18.13			N/A

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Clause	Requirement + Test			Result - Remark	Verdict	
8 VOID						N/A
9 Custom chips ^d e.g. ASIC, GAL, gate array	Any output outside the static and dynamic functional specification	Periodic self-test	H.2.16.6			N/A
NOTE A Stuck-at fault model denotes a fault model representing an open circuit or a non-varying signal level. A DC fault model denotes a stuck-at fault model incorporating short circuit between signal lines.						
<p>a) For fault/error assessment, some components are divided into their sub-functions.</p> <p>b) For each sub-function in the table, the Table R.2 measure will cover the software fault/error.</p> <p>c) Where more than one measure is given for a sub-function, these are alternatives.</p> <p>d) To be divided as necessary by the manufacturer into sub-functions.</p> <p>e) Table R.1 is applied according to the requirements of R.1 to R.2.2.9 inclusive.</p>						

S	ANNEX S - BATTERY OPERATED APPLIANCES POWERED BY BATTERIES THAT ARE NON-RECHARGEABLE OR NOT RECHARGED IN THE APPLIANCE			—
	The following modifications to this standard are applicable for battery-operated appliances where the batteries are either non-rechargeable (primary batteries), or			N/A
	rechargeable batteries (secondary batteries) that are not recharged in the appliance			N/A
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
	- 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

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Clause	Requirement + Test	Result - Remark	Verdict
	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
	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

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Clause	Requirement + Test	Result - Remark	Verdict
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
T	ANNEX T - UV-C RADIATION EFFECT ON NON-METALLIC MATERIALS		—
	Requirements for non-metallic materials subject to direct or reflected UV-C radiation exposure and whose mechanical and electrical properties are relied upon for compliance with the		N/A
	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 ² 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 be 63 °C +/- 3 °C		N/A
5.3.1	Humidification of the chamber air is specified in part 2 when necessary		N/A
9	This clause is not applicable		N/A
	Modifications to ISO 4892-2:		—
7.1	At least three test specimens are tested		N/A
	Ten samples of internal wiring 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

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Clause	Requirement + Test	Result - Remark	Verdict
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
DD	ANNEX DD - REQUIREMENTS FOR INSTALLATION, SERVICE, MAINTENANCE AND REPAIR, AND DECOMMISSIONING MANUALS OF APPLIANCES USING FLAMMABLE REFRIGERANTS		—
DD.1	General		—
	Each manual include requirements of clauses according to Table DD.1. Different manuals can be combined into one manual.		P
	Numerical values needed for proper installation, service, maintenance, and repair, and decommissioning in the form of a single figure or a table without reference to a formula.		P
	For factory sealed single package units, the installation manual does not need to include material from DD.4.8 and Clause DD.9.		P
DD.2	Symbols		—
	The symbols referred to in 7.6 (without colours is permitted) and the information of the warning marking shall be provided as follows:		P
	WARNING Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.		P
	The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater.		P
	Do not pierce or burn.		P
	Be aware that refrigerants may not contain an odour.		P
	The manufacturer may provide other suitable examples or may provide additional information about the refrigerant odour.		P
DD.3	Information in manual		—

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Clause	Requirement + Test	Result - Remark	Verdict
DD.3.1	General		—
	The following information specified in the manual where the information is needed for the function of the manual and as applicable to the appliance:		—
	1) information for spaces where field-installed refrigerant pipes are allowed, including statements		—
	a) that the installation of pipe-work shall be kept to a minimum;		P
	b) that pipe-work securely mounted and guarded from physical damage;		P
	c) that pipe-work not be installed in an unventilated space, if that space is smaller than A_{min} in Annex GG, except for A2L refrigerants where installed pipe-work has no connecting joints or is connected with at least one of the following:		—
	i) joints in compliance with ISO 14903,		P
	ii) joints in enclosures which vent to the unit or to the outside,		P
	iii) joints in enclosures which vent to a room with a room area of at least A_{min} as specified in GG.2.1;		P
	d) that compliance with national gas regulations observed;		P
	e) that mechanical connections made in accordance with 22.118 accessible for maintenance purposes;		P
	2) where addition of charge is required to complete installation, instructions on how to determine the additional refrigerant charge and how to complete the refrigerant charge on the label provided by the manufacturer considering the requirements in 7.107. Interconnecting refrigerant piping length and diameter taken into consideration;		P
	3) where safety shut-off valves are installed, instructions on how to determine the releasable charge, mrl. Safety shut-off valve location and refrigerant piping volume between safety shut-off valve and the indoor unit taken into consideration;		P
	4) detailed instructions on how to correctly install the appliance including piping and safety shut-off valves for every space in which refrigerant can leak into, where applicable.		P
	a) minimum room area, A_{min} , or minimum room area of conditioned space T_{Amin} , as a function of the refrigerant charge, mc, or as a function of the releasable charge, mrl. If the releasable charge, mrl, has been used, a warning that the minimum room area or minimum room area of conditioned space is based on releasable charge and is not related to total system refrigerant charge;		P

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Clause	Requirement + Test	Result - Remark	Verdict
	b) refrigerant charge, mc, and, if the releasable charge, mrl, has been determined, the releasable charge, mrl. The effect on refrigerant charge shall be considered from field-installed piping, field charging, or both, if applicable;		P
	c) required installed height, hinst;		P
	d) minimum ventilation airflow volume Qmin;		P
	e) minimum opening area for natural ventilation Anv,min		P
	Additional minimum room area data may be provided based on other installed heights and/or charge levels;		—
	5) information for handling, installation, cleaning, servicing and disposal;		P
	6) for appliances intended for use at altitudes 2 000 m and above, the instructions shall include how to adjust minimum room area, Amin, and minimum room area of conditioned space, TAmin, as applicable from Annex GG, based on the building site ground level altitude;		P
	7) a warning to keep any required ventilation openings clear of obstruction		P
	8) a notice that servicing performed only as recommended by the manufacturer;		P
	9) a warning that ducts connected to an appliance not contain a potential ignition source;		P
	10) instructions for wiring to external zoning dampers and/or mechanical ventilation, if required to comply with Clause GG.9, to ensure that upon detection of a leak, the zoning dampers are driven fully open and additional mechanical ventilation is activated;		P
	11) for mechanical ventilation as specified in GG.8.3 or for enhanced tightness refrigerating systems GG.11.3, information on installation of the mechanical ventilation air extracted and air intake openings per GG.8.3.3 or for enhanced tightness refrigerating systems GG.11.3.3;		P
	12) for appliances relying on safety measures according to GG.8.3 or for enhanced tightness refrigerating systems GG.11.3, instructions for wiring to mechanical ventilation;		P
	13) for appliances using a remote located refrigerant sensor, how and where to install and connect the refrigerant sensor in compli		P
	14) when a remote located refrigerant sensor is specified by the manufacturer, the instructions state the recommended periodic service and maintenance procedures;		P

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Clause	Requirement + Test	Result - Remark	Verdict
	15) when a limited life refrigerant sensor is employed, the life of the refrigerant sensor and instruction on how to replace it;		P
	16) for appliances using A2L refrigerants, connected via an air duct system to one or more rooms, the supply and return air directly ducted to the space. Open areas such as false ceilings not be used as a return air duct;		P
	17) a warning that precautions taken to avoid excessive vibration or pulsation to refrigerating piping;		P
	18) a warning that protection devices, piping and fittings shall be protected as far as possible against adverse environmental effects, for example the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris;		P
	19) a warning that provision made for expansion and contraction of long runs of piping;		P
	20) a warning that piping in refrigerating systems so designed and installed as to minimize the likelihood of hydraulic shock damaging the system;		P
	21) a warning that solenoid valves correctly positioned in the piping to avoid hydraulic shock and not block in liquid refrigerant unless adequate relief is provided;		P
	22) a warning that steel pipes and components protected against corrosion with a rustproof coating before applying any insulation;		P
	23) where field installed safety shut-off valves are specified for refrigerating systems, a warning that only safety shut-off valves specified by the appliance manufacturer used;		P
	24) where safety shut-off valves are to be field installed, information on where and how the safety shut-off valves shall be installed;		P
	25) information that safety shut-off valves only be replaced with valves specified by the appliance manufacturer;		P
	26) field-made refrigerant joints indoors shall be tightness tested. The test method have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure. No leak detected;		P
	27) where remote refrigerant detection systems are specified, a warning that only refrigerant sensors specified by the appliance manufacturer used;		P

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Clause	Requirement + Test	Result - Remark	Verdict
	28) information that the refrigerant detection system refrigerant sensorsl only be replaced with refrigerant sensors specified by the appliance manufacturer;		P
	29) for appliances with a leak detection system, safety shut-off valves not be reset until the room has been ventilated, because resetting can result in additional flammable refrigerant released into the space;		P
	30) electrical components that can arc or spark, which are not considered ignition sources due to compliance with 22.116.1 points b), c), d), or f) only be replaced with parts specified by the appliance manufacturer. Replacement with other parts may result in the ignition of refrigerant in the event of a leak;		P
	31) Where openings according to GG.1.4 are applied, information that these openings not be blocked.		P
DD.3.2	Unventilated areas		—
	For appliances containing more than m1 for any refrigerating circuit, the manual shall include a statement advising that an unventilated area where the appliance is installed so constructed that should any refrigerant leak, it will not stagnate so as to create a fire or explosion hazard. This shall include:		P
	- for appliances which are not fixed appliances, a warning that the appliance stored in an well-ventilated area where the room size corresponds to the room area as specified for operation;		P
	- for appliances which are not fixed appliances, a warning that the appliance stored in a room without continuously operating open flames (for example an operating gas appliance) and or other potential ignition sources (for example an operating electric heater, hot surfaces);		P
	- a warning that if appliances connected via an air duct system to one or more rooms are installed in a room with an area less than Amin as determined in Clause GG.2, that room without continuously operating open flames (for example an operating gas appliance) or other potential ignition sources (for example an operating electric heater, hot surfaces). A flame-producing device may be installed in the same space if the device is provided with an effective flame arrest;		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- for appliances connected via an air duct system to one or more rooms, a warning with the substance of the following: "Auxiliary devices which may be a potential ignition source shall not be installed in the duct work. Examples of such potential ignition sources are hot surfaces with a temperature exceeding X°C and electric switching devices";		P
	- for appliances connected via an air duct system to one or more rooms, a warning that only auxiliary devices approved by the appliance manufacturer or declared suitable with the refrigerant installed in connecting ductwork. The manufacturer can list in the instructions all approved auxiliary devices by the manufacturer and model number for use with the specific appliance.		P
	The manufacturer should specify other potential continuously operating sources known to cause ignition of the refrigerant used.		P
DD.3.3	Qualification of workers		—
	The manual shall contain specific information about the required qualification of the working personnel for maintenance, service and repair operations. Every working procedure that affects safety means shall only be carried out by competent persons.		P
	Examples for such working procedures are:		P
	breaking into the refrigerating circuit;		P
	opening of sealed components;		P
	opening of ventilated enclosures.		P
DD.4	Information on servicing		—
DD.4.1	General		—
	The manual shall contain specific information for service personnel according to DD.4.2 to DD.4.10.		P
DD.4.2	Checks to the area		—
	Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimised. For repair to the refrigerating system, DD.4.3 to DD.4.7 shall be completed prior to conducting work on the system.		P
DD.4.3	Work procedure		—
	Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed.		P
DD.4.4	General work area		—

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Clause	Requirement + Test	Result - Remark	Verdict
	All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.		P
DD.4.5	Checking for presence of refrigerant		—
	The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.		P
DD.4.6	Presence of fire extinguisher		—
	If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.		P
DD.4.7	No ignition sources		—
	No person carrying out work in relation to a refrigerating system which involves exposing any pipe work use any sources of ignition in such a manner that it can lead to the risk of fire or explosion.		P
	All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space.		P
	Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs displayed.		P
DD.4.8	Ventilated area		—
	Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work.		P
	A degree of ventilation shall continue during the period that the work is carried out.		P
	The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.		P
DD.4.9	Checks to the refrigerating equipment		—
	Where electrical components are being changed, they fit for the purpose and to the correct specification.		P

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Clause	Requirement + Test	Result - Remark	Verdict
	At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.		P
DD.4.10	Checks to electrical devices		—
	Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures.		P
	If a fault exists that could compromise safety, then no electrical supply connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.		P
	Initial safety checks shall include:		P
	-that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;		P
	-that no live electrical components and wiring are exposed while charging, recovering or purging the system;		P
	-that there is continuity of earth bonding.		P
DD.5	Repairs to sealed components		—
	Sealed electrical components not be repaired		P
DD.6	Cabling		—
	Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects.		P
	The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.		P
DD.7	Detection of flammable refrigerants		—
	Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.		P
	Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity can be inadequate, or can need re-calibration.		P
	Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine avoided as the chlorine can react with the refrigerant and corrode the copper pipe-work.		P
	If a leak is suspected, all naked flames shall be removed/extinguished.		P
	If a leakage of refrigerant is found which requires brazing, all of the refrigerant recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Removal of refrigerant shall be according to Clause DD.8.		P
DD.8	Removal and evacuation		—
	When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures used.		P
	However, for flammable refrigerants it is important that best practice is followed since flammability is a consideration.		P
	The following procedure adhered to:		—
	-safely remove refrigerant following local and national regulations		P
	-evacuate;		P
	-purge the circuit with inert gas		P
	-evacuate (optional for A2L);		P
	-continuously flush with inert gas when using flame to open circuit;		P
	-open the circuit		P
	The refrigerant charge recovered into the correct recovery cylinders.		P
	The manufacturer specify the inert gases that can be used. Compressed air or oxygen not be used for purging refrigerant systems.		P
	Purging of the refrigerant circuit achieved by breaking the vacuum in the system with inert gas and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system.		P
	This process repeated until no refrigerant is within the system.		P
	The system vented down to atmospheric pressure to enable work to take place		P
	Ensure that the outlet of the vacuum pump is not close to any potential ignition sources and that ventilation is available.		P

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Clause	Requirement + Test	Result - Remark	Verdict
DD.9	Charging procedures		—
	In addition to conventional charging procedures, the following requirements shall be followed.		P
	Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimise the amount of refrigerant contained in them.		P
	Cylinders shall be kept in an appropriate position according to the instructions.		P
	Ensure that the refrigerating system is earthed prior to charging the system with refrigerant.		P
	Label the system when charging is complete (if not already).		P
	Extreme care shall be taken not to overfill the refrigerating system.		P
	Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas.		P
	The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.		P
DD.10	Decommissioning		—
	Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail.		P
	It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.		P
	a) Become familiar with the equipment and its operation.		P
	b) Isolate system electrically.		P
	c) Before attempting the procedure, ensure that:		P
	mechanical handling equipment is available, if required, for handling refrigerant cylinders;		P
	all personal protective equipment is available and being used correctly;		P
	the recovery process is supervised at all times by a competent person;		P
	recovery equipment and cylinders conform to the appropriate standards.		P
	d) Pump down refrigerant system, if possible.		P

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Clause	Requirement + Test	Result - Remark	Verdict
	e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.		P
	f) Make sure that cylinder is situated on the scales before recovery takes place.		P
	g) Start the recovery machine and operate in accordance with instructions.		P
	h) Do not overfill cylinders (no more than 80 % volume liquid charge).		P
	i) Do not exceed the maximum working pressure of the cylinder, even temporarily.		P
	j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.		P
	k) Recovered refrigerant not be charged into another refrigerating system unless it has been cleaned and checked.		P
DD.11	Labelling		—
	Equipment labelled stating that it has been de-commissioned and emptied of refrigerant.		P
	The label shall be dated and signed.		P
	For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.		P
DD.12	Recovery		—
	When removing refrigerant from a system, either for servicing or decommissioning, it is required to follow good practice that all refrigerants are removed safely.		P
	When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.		P

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Clause	Requirement + Test	Result - Remark	Verdict
	The recovery equipment in good working order with a set of instructions concerning the equipment that is at hand and suitable for the recovery of the flammable refrigerant. Consult manufacturer if in doubt. In addition, a set of calibrated weighing scales available and in good working order. Hoses complete with leak-free disconnect couplings and in good condition		P
	The recovered refrigerant processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders		P
	If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant.		P
	The compressor body not be heated by an open flame or other ignition sources to accelerate this process		P
	Draining of oil from a system, it carried out safely.		P
EE	ANNEX EE - PRESSURE TESTS		—
EE.1	General		—
	All refrigerating system parts shall withstand the maximum pressure in normal operation, abnormal operation, and standstill.		P
	The maximum allowable pressure marked on the system not less than the maximum pressure developed during operation under Clause 11, under Clause 19 and during standstill, see Clause EE.2.		P
	A compressor tested and found to comply with IEC 60335-2-34 need not be additionally tested.		P
	Compliance is checked by the tests in Clause EE.3 or EE.4.		P
	All tested samples shall not leak.		P
	Where gaskets are employed for sealing parts under pressure, leakage at gaskets is acceptable, provided the leakage only occurs at a value greater than 120 % of the maximum allowable pressure and the test pressure is still reached for the specified time.		P
	Additional sealing measures, such as an "O" ring, for pressure testing may be provided.		P
EE.2	Determination of standstill pressure		—
	In order to determine the standstill pressure, the appliance shall be soaked in the highest operating temperature specified by the manufacturer for 1 h with power off.		P

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Clause	Requirement + Test	Result - Remark	Verdict
	A refrigerating system component that is exposed only to low side pressure can be exposed to a higher pressure under the condition of standstill than under normal operation.		P
EE.3	The test pressure at least three times the marked maximum allowable pressure.		P
	The pressure test shall be carried out on three samples of each component.		P
	The test samples are filled with a liquid, such as water, to exclude air and are connected in a hydraulic pump system.		P
	The pressure is raised gradually until the required test pressure is reached. The pressure is maintained for at least 1 min.		P
EE.4	Fatigue test		—
	The components subjected to a test at 66,7 % of the test pressure determined by Clauses EE.2, EE.3 or EE.4, provided the components comply with the fatigue test in Clause EE.5. This test is conducted on a separate sample.		P
	Three samples of each refrigerant-containing part shall be tested. The total number of cycles 250 000.		P
	The test samples filled with fluid, and shall be connected to a pressure driving source. The pressure shall be raised and lowered between the upper and lower cyclic values at a rate specified by the manufacturer. The pressure shall reach the specified upper and lower values during each cycle. The shape of the pressure cycle shall be such that the upper and lower pressure values shall be maintained for at least 0,1 s.		P
	the operating temperatures of the appliance under the conditions of steady state operation of Clause 11 are less than or equal to 125 °C for copper or aluminium, or 200 °C for steel, the test temperature of the component part or assembly at least 20 °C.		P
	If the continuous operating temperature of the component exceeds 125 °C for copper or aluminium, or 200 °C for steel, the test temperature of the parts or assemblies that are at these temperatures, and subjected to the pressure, shall be at least 25 °C greater than the temperature of the part measured during the test of Clause 11 for copper or aluminium and 60 °C higher for steel.		P
	For other materials, the effects of temperature on the material fatigue characteristics evaluated by conducting the test at the higher temperatures and considering the material characteristics at the higher temperatures.		P
	The pressure for the test cycles as follows:		—

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Clause	Requirement + Test	Result - Remark	Verdict
	a) For components subject to high side pressures, the upper pressure value not be less than the saturated vapour pressure of the refrigerant at 50 °C and the lower pressure value not be greater than the saturated vapour pressure of the refrigerant at 5 °C. For sanitary hot water heat pumps, the upper pressure not be less than 80 % of the marked maximum allowable pressure under the conditions of Clause 11.		P
	b) For components subjected to only low side pressures, the upper pressure value not less than the saturated vapour pressure of the refrigerant at 30 °C and the lower pressure value shall be between 0 bar and the greater of 4,0 bar or the saturated vapour pressure of the refrigerant at –13 °C.		P
	For the final test cycle, the test pressure to two times the pressure determined in a) or b).		P
FF	ANNEX FF - LEAK SIMULATION TESTS		—
FF.1	General		—
	A leakage of refrigerant is simulated in the refrigerating system at the potential leak points.		P
	The method to simulate a leakage at the potential leak points is to inject refrigerant vapour through a suitable capillary tube at that point		P
	Where LFL is referenced in this annex, the LFL shall be taken at the nominal composition as specified in Annex BB.		P
	Piping are not considered to be potential leak points within the area of the appliance to be evaluated if they comply with all of the following		—
	– are protected from potential damage during normal operation, service and maintenance;		P
	– have no connecting joints;		P
	– have no bends with centreline bend radius less than 2,5 times the external pipe diameter		P
FF.2	Test methods		—
FF.2.1	The appliance is modified by introducing a simulated leak through a capillary tube.		P
	The quantity of refrigerant leaked, mFF, is equal to smallest of:		—
	– the refrigerant charge, mc;		P
	– the releasable charge, mrl, as determined by Annex QQ;		P
	– for parts of enhanced tightness refrigerating systems which can leak into an indoor space using A2L refrigerant, 10 kg;		P

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Clause	Requirement + Test	Result - Remark	Verdict
	– for parts of enhanced tightness refrigerating systems which can leak into an indoor space using A2 or A3, the amount that will leak during 1 hour with the leak rate m_{leak} of GG.14.3.		P
	The leak rate shall be maintained at 25 % \pm 5 % of the refrigerant leaked, m_{FF} , per minute		P
	For parts of enhanced tightness refrigerating systems which can leak into an indoor space, the leak rate maintained at 10 kg per hour for A2L refrigerants or the leak rate m_{leak} of GG.14.3 for A2 and A3 refrigerants.		P
	The leak maintained until the quantity of refrigerant leaked, m_{FF} , has leaked		P
	The refrigerant is injected at the most unfavourable potential leak point and the most unfavourable direction at ambient temperature (15 °C to 35 °C).		P
FF.2.2	During this test, the appliance is switched off or operated under normal operation at rated voltage		P
	If airflow is activated before any potential ignition sources are activated, then the test is not conducted with the appliance switched off.		P
	During a test where the appliance is operating, refrigerant gas injection is started at the same time as the appliance is switched on		P
	In "switched off" mode, the appliance remain connected to the mains and safety mitigation controls, such as refrigerant detection system and circulation airflow or safety shut-off valves, shall be allowed to function as intended		P
FF.2.3	For refrigerant blends, the test carried out using the nominal composition as defined in Annex BB.		P
FF.2.4	The test is conducted in a room that is draught-free and of sufficient size to conduct the test.		P
	The minimum volume (V) is: $V = (15 \times m_c)/LFL$		P
	Care taken that the installation of the capillary tube does not unduly influence the results of the test and that the structure of the appliance does not unduly influence the results of the test.		P
	The instrument used for monitoring the refrigerant gas concentration shall have a $t(90)$ response time of faster than 30 seconds and located so as to not unduly influence the results of the test.		P
	If gas chromatography is used to measure the refrigerant gas concentrations, the gas sampling in confined areas shall not exceed 2 ml every 30 s.		P

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Clause	Requirement + Test	Result - Remark	Verdict
FF.2.5	The measured concentration of refrigerant gas surrounding the any component that can be an ignition source not exceed 25 % of the LFL of the refrigerant gas, and shall not exceed 15 % of the LFL of the refrigerant gas for a time period of 5 min or the duration of the test if less than 5 min during and after the amount has been injected.		P
GG	ANNEX GG - CHARGE LIMITS, VENTILATION REQUIREMENTS AND REQUIREMENTS FOR SECONDARY CIRCUITS		—
GG.1	Requirements for refrigerant charge limits		—
GG.1.1	General		—
	When a flammable refrigerant is used, the requirements for installation space of appliance and/or ventilation requirements are determined according to		—
	- the refrigerant charge (M) (mc) used in the appliance,		P
	– the releasable charge (mrl),		P
	- the installation location,		P
	- the type of ventilation of the location or of the appliance.		P
	For appliances with multiple refrigerating systems, each refrigerating system shall be evaluated independently		P
	Where multiple values of Amin are found based on different operating states, the highest value Amin for the appliance		P
	Where the parameters lower flammability limit (LFL) and molecular weight (M) are referenced in Annex GG, the values used shall be based on WCF – Worst Case Formulation as specified in Annex BB.		P
	Toxicity charge limits determined per ISO 5149-1:2014, ISO 5149-1:2014/AMD1:2015, and ISO 5149-1:2014/AMD2:2021. If the toxicity-based charge limits are less than the flammability based charge limits, the toxicity charge limits take precedence.		P
	For appliances with a refrigerant charge of mc ≤ m1, no minimum room area is required and Clause GG.6 does not apply.		P
	For appliances where leaked refrigerant does not enter the indoor space, no minimum room area is required.		P
	If releasable charge is determined by Annex QQ:		—
	– for releasable charge mrl ≤ m1, there is no requirement for minimum room area, Amin, and Clause GG.6 does not apply		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	– for releasable charge $m_{rl} > m_1$, each operating state of the refrigerating system comply with at least one of the clauses: GG.2, GG.3, GG.4, GG.7, GG.9, and GG.14. The refrigerant charge m_c may be replaced by the releasable charge m_{rl} in the formulae of Annex GG.		N/A
GG.1.2	Determination of the case applicable		—
	Determination of the case applicable refrigerant capped quantity limit		P
	For A2 and A3 refrigerants, m_1 , m_2 , m_3 are defined as follows:		—
	$m_1 = 4 \times LFL$		N/A
	$m_2 = 26 \times LFL$		N/A
	$m_3 = 130 \times LFL$		N/A
	where LFL is the lower flammability limit in kg/m ³ for the refrigerant used.		N/A
	For A2L refrigerants, m_1 , m_2 , m_3 is defined as follows:		P
	$m_1 = 6 \times LFL$	$m_c < m_1$	P
	$m_2 = 52 \times LFL$		N/A
	$m_3 = 260 \times LFL$		N/A
	where LFL is the lower flammable limit in kg/m ³ for the refrigerant used.		N/A
GG.1.3	Determination of unventilated room area		—
GG.1.3.1	General		—
	For the purpose of determination of room area (A) when used to calculate the maximum allowable refrigerant charge (m_{max}) in an unventilated space, the following apply.		P
	The room area (A) defined as the room area enclosed by the projection to the floor of the walls, partitions and doors of the space in which the appliance is installed.		P
	Spaces connected by only drop ceilings, ductwork, or similar connections not be considered a single space.		N/A
GG.1.3.2	Determination of unventilated room area for appliances using A2L refrigerant		—
	For units mounted higher than 1,6 m, and in compliance with GG.2.2, spaces divided by partition walls which are no higher than 1,6 m considered a single space.		N/A
	For fixed appliances, rooms on the same floor and connected by an open passageway between the spaces can be considered a single room when determining compliance to A_{min} , if the passageway complies with all of the following:		—

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Clause	Requirement + Test	Result - Remark	Verdict
	– it is a permanent opening;		N/A
	– it extends to the floor;		N/A
	– it is intended for people to walk through.		N/A
	For fixed appliances, the area of the adjacent rooms, on the same floor, connected by permanent opening in the walls and/or doors between occupied spaces, including gaps between the wall and the floor, can be considered a single room when determining compliance to A_{min} , provided all of the following are met.		P
	• The space have appropriate openings according to GG.1.4.		P
	• The minimum opening area for natural ventilation, $An_{v,min}$, shall not be less than the following:		P
GG.1.3.3	Determination of unventilated room area for appliances using A2 and A3 refrigerant		—
	For determining compliance to A_{min} for fixed appliances with release height, h_0 , according to GG.2.1, not less than 1,6 m, rooms on the same floor and connected by an open passageway between the spaces can be considered a single room if the passageway complies with all of the following:		—
	– it is a permanent opening;		N/A
	– it extends to the floor;		N/A
	– it is intended for people to walk through.		N/A
	For determining compliance to A_{min} for fixed appliances and with release height, h_0 , according to GG.2.1, less than 1,6 m or fixed appliances with circulation airflow at any release height, h_0 , rooms on the same floor and connected by an open passageway between the spaces can be considered a single room with an area of the space that the refrigerant can leak directly into plus half of the area of the connected space, if all of the following is complied with:		—
	– the area of the space in which the unit is installed not be less than 20 % of A_{min} ;		N/A
	– the passageway is a permanent opening;		N/A
	– the passageway extends to the floor;		N/A
	– the passageway is intended for people to walk through.		N/A
GG.1.4	Opening conditions for connected rooms and natural ventilation for appliances using A2L refrigerants		—
	When the openings for connected rooms or natural ventilation are required, the following conditions shall be applied for the lower opening.		P
	-The area of any openings above 300 mm from the floor shall not be considered in determining compliance with $An_{v,min}$. The area of any openings above 300 mm from the floor shall not be considered in determining compliance with $An_{v,min}$.		P

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Clause	Requirement + Test	Result - Remark	Verdict
	-At least 50 % of the required opening area Anv,min. shall be below 200 mm from the floor.		P
	The bottom of the lowest openings shall not be higher than the point of release when the unit is installed and not more than 100 mm from the floor.		P
	For openings extending to the floor, the height not be less than 20 mm above the surface of the floor covering.		P
	A second higher opening shall be provided. The total size of the second opening shall not be less than 50 % of minimum opening area for Anv,min and at least 1,5 m above the floor.		P
	Openings shall be permanent openings which cannot be close		P
GG.2	Requirements for charge limits in unventilated areas		—
GG.2.1	General		—
	Clause GG.2 is applicable for appliances with a refrigerant charge $m1 < mc \leq m2$ and for factory sealed single package units which are not fixed appliances with a refrigerant charge of $m1 < mc \leq 2 \times m1$:		N/A
	For factory sealed single package units which are not fixed appliances with a refrigerant charge of $m1 < mc \leq 2 \times m1$, the requirements of Clause GG.7 apply.		N/A
	For systems using A2L refrigerants with a refrigerant charge of $m1 < mc \leq m3$ that comply with the conditions in 22.125, the requirements of Clause GG.10 can apply.		N/A
	For systems using A2 or A3 refrigerants with a refrigerant charge of $m1 < mc \leq m2$ that comply with the conditions in 22.125, the requirements of Clause GG.14 can apply.		N/A
	For other appliances with a refrigerant charge of $m1 < mc \leq m2$:		P
	The maximum refrigerant charge in a room shall be in accordance with the following:		—
	$m_{max} = 2,5 \times (LFL)^{5/4} \times h_0 \times (A)^{1/2}$, not to exceed $m_{max} = CF \times LFL \times h_0 \times A$ (GG.8)		P
	or the required minimum room area A_{min} to install an appliance with refrigerant charge mc (kg) shall be in accordance with following:		P
	$A_{min} = (mc / (2,5 \times (LFL)^{5/4} \times h_0))^2$, not less than $A_{min} = mc / (CF \times LFL \times h_0)$ (GG.9)		P

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Clause	Requirement + Test	Result - Remark	Verdict
	If the minimum installed height given by the manufacturer is higher than the reference installed height, then in addition A_{min} and m_{max} for the reference installed height given by the manufacturer. An appliance may have multiple reference installed heights. In this case, A_{min} and m_{max} calculations shall be provided for all applicable reference installed heights.		P
	For appliances serving one or more rooms with an air duct system, the lowest opening of the duct connection to each conditioned space or any opening of the indoor unit greater than 5 cm ² , at the lowest position to the space, used for h_0 . However, h_0 shall not be less than 0,6 m. A_{min} shall be calculated as a function of the opening heights of the duct to the spaces and the refrigerant charge for the spaces where leaked refrigerant can flow to, considering where the unit is located. A_{min} shall be calculated for the spaces where a duct is connected or an indoor unit is located. If all spaces have room area more than respective A_{min} , no further measure is required. If any room area of spaces is below A_{min} , measures according to Clause GG.8 or GG.9 provided for appliances using A2L refrigerants.		P
GG.2.2	Appliances using A2L refrigerants with circulation airflow		—
GG.2.2.1	General		—
	When the fan integrated into an appliance is continuously operated or operation is initiated by a leak detection system with a sufficient circulation airflow rate (see also Table GG.2), the maximum refrigerant charge can be increased or minimum room area can be reduced according to the following:		—
	The maximum refrigerant charge in a room in accordance with m_{max}		N/A
	or the required minimum room area A_{min} of installed appliance with refrigerant charge m_c (kg) in accordance with A_{min}		N/A
	Operation of circulation airflow comply with either GG.2.2.2 or GG.2.2.3.		N/A
G.2.2.2	Continuous circulation airflow		—
	The fan shall run continuously, other than for short periods for maintenance and service. The airflow shall be monitored continuously. Within 10 s in the event that the airflow is reduced below Q_{min} , the following actions taken:		—
	– warn user that airflow is reduced;		N/A
	– disable the compressor operation unless the compressor operation reduces the leak rate or the total amount released to the indoor space.		N/A
GG.2.2.3	Circulation airflow activated by a detection system		—

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Clause	Requirement + Test	Result - Remark	Verdict
	If a leak detection system is activated, the following actions shall be taken and continue for at least 5 min after the detection system has reset:		N/A
	– energize the fan(s) of the appliance to deliver indoor airflow at or above the minimum airflow Q_{min} ;		N/A
	– disable the compressor operation unless the compressor operation reduces the leak rate or the total amount released to the indoor space.		N/A
GG.2.3	Fixed appliances using A2/A3 refrigerants with integral circulation airflow		—
GG.2.3.1	General		—
	When the fan integrated into an appliance is continuously operated or operation is initiated by a leak detection system with sufficient airflow rate, the maximum refrigerant charge can be increased or minimum room area can be reduced according to following. $m_{max} = CF \times LFL \times A \times 2,2$ $A_{min} = mc / (CF \times LFL \times 2,2)$		N/A
	The fan integrated into an appliance shall have a minimum circulation airflow according to Q_{min}		—
	Operation of circulation airflow comply with either GG.2.3.2 or GG.2.3.3.		N/A
GG.2.3.2	Continuous circulation airflow		—
	The indoor fan shall run continuously, other than for short periods for maintenance and service. The airflow monitored continuously. Within 10 seconds in the event that the airflow is reduced below Q_{min} , the following actions taken		—
	– warn user that airflow is reduced;		N/A
	– disable the compressor operation unless the compressor operation reduces the leak rate or the total amount released to the indoor space.		N/A
GG.2.3.3	Circulation airflow activated by a leak detection system		—
	If a leak detection system is activated, the following actions shall be taken and continued for at least 5 min after the leak detection system has reset:		—
	– energize the fan(s) of the appliance to deliver indoor airflow at or above the minimum airflow Q_{min} ;		N/A
	– disable the compressor operation unless the compressor operation reduces the leak rate or the total amount released to the indoor space.		N/A
GG.3	Requirements for charge limits in areas with mechanical ventilation		—
	Mechanical ventilation applies to fixed appliances only.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Mechanical ventilation occurs when the appliance enclosure or the room is provided with a ventilating system that, in the event of a leak, is intended to vent refrigerant into an area where there is not a potential ignition source and the gas can be readily dispersed.		N/A
	The appliance enclosure have a ventilation system that produces airflow within the appliance enclosure and meets the requirements of Clause GG.4 or is intended to be installed in a room that meets the requirements of Clause GG.5.		N/A
GG.4	Requirements for mechanical ventilation within the appliance enclosure		—
	The refrigerating circuit is provided with a separate enclosure that does not allow flow from inside the enclosure to the room.		N/A
	The appliance enclosure have a ventilation system that produces airflow from the appliance interior to the outside through an exhaust ventilation shaft duct.		N/A
	The manufacturer specify the exhaust ventilation duct dimensions, the maximum length and number of bends.		N/A
	The negative pressure measurement in the interior of the appliance enclosure shall be 20 Pa or more and the flow rate to the exterior at least Q_{min}		N/A
	For refrigerating systems which are not enhanced tightness refrigerating systems, the leak rate, m_{leak}		N/A
	For enhanced tightness refrigerating systems, the leak rate, m_{leak} , determined as:		—
	– for A2L refrigerants $m_{leak} = 0,002\ 78\ \text{kg/s}$,		N/A
	– for A2 and A3 refrigerants, the values of GG.14.3.1, Table GG.6 in kg/s		N/A
	Ventilation shall be to the outside or to a room with a minimum volume as specified in Clause GG.2, Formula (GG.9).		N/A
	The ventilation run continuously, other than for short periods for maintenance and service. The airflow monitored continuously. Within 10 seconds in the event that the airflow is reduced below Q_{min} , the following actions taken:		—
	– warn user that airflow is reduced;		N/A
	– disable the compressor operation unless the compressor operation reduces the leak rate or the total amount released into the enclosure. Or		N/A
	The ventilation is switched on by a leak detection system and the following actions taken and continued for at least 5 min after the leak detection system has reset:		—
	– energize the fan(s) of the appliance to deliver airflow at or above the minimum airflow Q_{min} ;		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	– disable the compressor operation unless the compressor operation reduces the leak rate or the total amount released to the enclosure.		N/A
GG.5	Requirements for mechanical ventilation for rooms complying with ISO 5149		—
	Machinery rooms shall meet the requirements of Clause 5 of ISO 5149-3:2014.		N/A
GG.6	Requirements for refrigerating systems employing secondary heat exchangers		—
	If a flammable refrigerant is used and the system contains a secondary heat exchanger, the heat exchanger not allow the release of refrigerant into areas served by the secondary heat exchanger fluid Compliance met by at least one of the following:		—
	- an open loop secondary system vented to the outside; or		N/A
	- an automatic air/refrigerant separator and pressure relief valve is placed in the secondary circuit on the outlet pipe from the evaporator or the condenser. The air/refrigerant separator and pressure relief valve is at a high level relative to the outlet of the heat exchanger where leaked refrigerant can accumulate. The pressure relief valve shall have a flow rating rated to discharge the refrigerant that can be released through the heat exchanger. The air/refrigerant separator and pressure relief valve shall discharge the refrigerant into a space compliant with the charge limitations in Annex GG or to the outside; or		N/A
	- a double wall heat exchanger, or		N/A
	- a refrigerant system where the pressure of the secondary circuit is always greater than the pressure of the primary circuit in the area of contact, or		N/A
	- the bursting of the secondary heat exchanger is avoided by		N/A
	1) specifying requirements for specific properties of the secondary heat exchanger fluid to prevent corrosion, including:		—
	• water: the manufacturer specify in the installation manual the water quality necessary for the specified heat exchanger;		N/A
	• brine: the manufacturer specify in the installation manual the type of brine and its permitted concentration range for which the heat exchanger is suitable.		N/A
	2) the use of a freezing protection device which considers		N/A
	• fluid freezing point;		N/A
	• distribution through the heat exchanger;		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	• glide of the evaporating refrigerant;		N/A
	• service procedures that could lead to freeze damage, for example adding or removing the refrigerant in liquid phase from a heat exchanger containing standing water;		N/A
GG.7	Factory sealed single package units with a refrigerant charge of $m1 < mc \leq 2 \times m1$		—
GG.7.1	Determination of refrigerant charge		—
	For factory sealed single package units (i.e. one functional unit in one enclosure) with a refrigerant charge amount of $m1 < M mc \leq 2 \times m1$, the maximum refrigerant charge in a room in accordance with m_{max}		N/A
	or the required minimum floor area, A_{min} , to install an appliance with refrigerant charge mc in accordance with A_{min}		N/A
	When the appliance is switched on, a fan operate continuously supplying a minimum airflow as under normal steady state conditions, even when the compressor is switched off by the thermostat.		N/A
GG.7.2	Mechanical requirements		—
GG.7.2.1	General		—
	The appliance shall withstand the effects of dropping and vibration during transport and normal use without leaking refrigerant.		N/A
GG.7.2.2	Drop test with packaging		—
	The appliance is tested in its final packaging for transport and shall withstand the following number of drops on a horizontal hardwood board 20 mm thick placed on a concrete or similar hard surface:		N/A
	one with the appliance held upright;		N/A
	one for each of the four edges of the bottom side, with the bottom side forming an angle of about 30° to the horizontal.		N/A
GG.7.2.3	Drop test without packaging		—
	The tests of GG.7.2.3 are repeated on the appliance without its packaging and with the drop height according to the Table GG.4		N/A
GG7.2.4	Test after installation		—
	The appliance is installed in accordance with the installation instructions. It is supplied at rated voltage or at the upper limit of the rated voltage range and operated at ambient temperature.		N/A
GG.7.3	Vibration test		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Vibrations exceeding 0,30 G RMS, when measured with a low pass filter at 200 Hz, are not allowed in the refrigerant containing pipes under normal operation		N/A
GG.8	Ventilated area requirements for appliances using A2L refrigerants		—
GG.8.1	General		—
	Clause GG.8 is applicable for appliances with a refrigerant charge $m1 < mc \leq m3$		N/A
	Ventilation provided when refrigerant charge is $mc > mmax$.		N/A
	Natural and mechanical ventilation apply to fixed appliances only.		N/A
GG.8.2	Natural ventilation requirements for appliances using A2L refrigerants		—
GG.8.2.3	Natural ventilation to outdoors		—
	If natural ventilation to outdoors is applied, all of the following shall be met.		N/A
	- Natural ventilation to outdoors is not allowed below ground level.		N/A
	– Natural ventilation from an occupied space shall not be made to outdoors.		N/A
	- The openings for natural ventilation comply with GG.1.4.		N/A
	– The maximum refrigerant charge of a system, $mmax$, and minimum opening area, Anv,min , for natural ventilation to outdoors shall be calculated		N/A
GG.8.3	Mechanical ventilation requirements for rooms with appliances using A2L refrigerants		—
GG.8.3.1	Operation of mechanical ventilation system		—
GG.8.3.1.1	General		—
	Mechanical ventilation in compliance with GG.8.3.1.2 or GG.8.3.1.3 provided.		N/A
GG.8.3.1.2	Continuous operation of mechanical ventilation system		—
	The mechanical ventilation system run continuously, other than for short periods for maintenance and service. The airflow monitored continuously. Within 10 s in the event that the airflow is reduced, below $Qmin$, the following actions taken:		—
	– warn user that airflow is reduced;		N/A
	– disable the compressor operation unless the compressor operation reduces the leak rate or the total amount released to the indoor space.		N/A
GG.8.3.1.3	Mechanical ventilation system activated by a leak detection system		—
	If a leak detection system is activated, the following actions taken and continued for at least 5 min after the leak detection system has reset:		—

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Clause	Requirement + Test	Result - Remark	Verdict
	– energize the mechanical ventilation system of the appliance to deliver indoor airflow at or above the minimum airflow Q_{min} ;		N/A
	– disable the compressor operation unless the compressor operation reduces the leak rate or the total amount released to the indoor space.		N/A
GG.8.3.2	Required airflow		—
	The airflow shall be calculated using of the formula below. Losses caused by ducts or other components in the air stream considered.		N/A
G.8.3.3	Requirement for opening		—
	For mechanical ventilation as specified in GG.8.3, the lower edge of openings extracting air from the room not be more than 100 mm above the floor.		N/A
	The openings extracting air from the room positioned relative to the openings supplying air to the room such that the supplied makeup air mixes with the leaked refrigerant.		N/A
	The openings exhausting air from the room positioned relative to the intake openings supplying air to the room to prevent re-circulation back to the room.		N/A
GG.9	Charge limits for appliances using A2L refrigerants connected via an air duct system to one or more rooms		—
GG.9.1	General		—
	Clause GG.9 is applicable for appliances with a refrigerant charge $0 < m_c \leq m_3$. The maximum refrigerant charge can be increased or the minimum room area can be reduced if the following requirements are met.		N/A
	The appliances connected via an air duct system to one or more rooms, the supply and return air shall be directly ducted to the space. Open areas such as false ceilings not be used as a return air duct		N/A
	Operation of circulation airflow comply with either GG.9.2 or GG.9.3.		N/A
	m_{max} determined based on the total area of the conditioned space (TA) connected by ducts taking into consideration that the circulation airflow distributed to all the rooms by the appliance integral indoor fan will mix and dilute the leaking refrigerant before entering any room. In the case when no refrigerant detection system is provided then, spaces where the airflow can be limited by zoning dampers not be included in the determination of TA.		N/A
GG.9.2	Continuous circulation airflow		—

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Clause	Requirement + Test	Result - Remark	Verdict
	The fan shall run continuously, other than for short periods for maintenance and service. The airflow monitored continuously. Within 10 s in the event that the airflow is reduced below Q_{min} , the following actions taken:		—
	- warn user that airflow is reduced.		N/A
	– disable the compressor operation unless the compressor operation reduces the leak rate or the total amount released to the indoor space.		N/A
GG.9.3	Circulation airflow activated by a refrigerant detection system		—
	If a leak detection system is activated, the following actions shall be taken and continued for at least 5 min after the leak detection system has reset:		—
	– energize the fan(s) of the appliance to deliver indoor airflow at or above the minimum airflow Q_{min} ;		N/A
	– disable the compressor operation unless the compressor operation reduces the leak rate or the total amount released to the indoor space		N/A
	– fully open all zoning dampers of the appliance and energize control signals to open any external zoning dampers if applicable;		N/A
	– activate additional mechanical ventilation, if required by GG.8.3.		N/A
GG.10	Allowable charge for enhanced tightness refrigerating systems		—
GG.10.1	General		—
	Clause GG.10 is applicable to enhanced tightness refrigerating systems using A2L refrigerants with refrigerant charge $m_1 < m_c \leq m_3$		N/A
	For appliances with more than one indoor unit, individual indoor unit cooling capacity shall not exceed 35 kW when tested in accordance with ISO 5151, ISO 13253, or ISO 15042 at T1 conditions.		N/A
	For heating only appliances with more than one indoor unit, individual indoor unit heating capacity shall not exceed 35 kW when tested in accordance with ISO 5151, ISO 13253, or ISO 15042 at H1 conditions.		N/A
	The applicable measures to be taken shall be ventilation (natural or mechanical), safety shut-off valves and safety alarm, in conjunction with leak detection systems as specified in GG.10.2.		N/A
	A safety alarm alone shall not be considered as an appropriate measure where occupants are restricted in their movement (see Clause GG.13).		N/A
GG.10.2	Required measures for allowable refrigerant charge		—
GG.10.2.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	For appliances where the refrigerant charge does not exceed maximum refrigerant charge in GG.10.3.1, no additional measures are required.		N/A
GG.10.2.2	Spaces except lowest underground floor of the building		—
	For appliances with release height, h_0 , as determined in Clause GG.2, equal to or greater than 1,8 m or with integral circulation airflow (see GG.10.4), where the refrigerant charge does not exceed maximum refrigerant charge in GG.10.3.2, no additional measures are required.		N/A
	For appliances without integral circulation airflow and having release height, h_0 , less than 1,8 m, where the refrigerant charge exceeds the maximum refrigerant charge in GG.10.3.1, but is less than or equal to the maximum refrigerant charge in GG.10.3.2, one additional measure shall be taken in accordance with Clause GG.11, GG.12 or GG.13.		N/A
	Where the refrigerant charge exceeds the maximum refrigerant charge in GG.10.3.2, a safety alarm shall be employed in accordance with Clause GG.13, and one additional measure taken in accordance with Clause GG.11 or GG.12.		N/A
GG.10.2.3	Lowest underground floor of the building		—
	For appliances without integral circulation airflow and having release height, h_0 , as determined in Clause GG.2, less than 1,8 m, where the refrigerant charge exceeds the maximum refrigerant charge in GG.10.3.1, but is less than or equal to the maximum refrigerant charge in GG.10.3.2, a safety alarm shall be employed in accordance with Clause GG.13, and one additional measure taken in accordance with Clause GG.11 or GG.12.		N/A
	For appliances with release height, h_0 , equal to or greater than 1,8 m or with integral circulation airflow (see GG.10.4), where the refrigerant charge exceeds the maximum refrigerant charge in GG.10.3.1, but is less than or equal to the maximum refrigerant charge in GG.10.3.2, one additional measure taken in accordance with Clause GG.11, GG.12 or GG.13.		N/A
	The refrigerant charge not exceed the maximum refrigerant charge in GG.10.53.2.		N/A
GG.10.3	Maximum refrigerant charge		—
GG.10.3.1	Maximum refrigerant charge limit A		—
	The maximum refrigerant charge m_{max} in a room and the required minimum room area A_{min} of the installed appliance with refrigerant charge m_c		N/A
	The effective height, H_r , of the unit is determined as follows:		—

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Clause	Requirement + Test	Result - Remark	Verdict
	– Where the release height, h_0 , as determined in Clause GG.2 is equal to or greater than 1,8 m or the appliance is with integral circulation airflow, the effective height, H_r , is the room height in m but not more than 2,2 m unless h_0 is higher than 2,2 m.		N/A
	– In all other cases, the effective height, H_r , is the release height, h_0 , as determined in Clause GG.2.		N/A
	For room areas exceeding 250 m ² , m_{max} calculated with a room area (A) of 250 m ² .		N/A
GG.10.3.2	Maximum refrigerant charge limit B		—
	The maximum refrigerant charge, m_{max} , in a room and the minimum room area, A_{min} are calculated, of the installed appliance with refrigerant charge.		N/A
	The effective height, H_r , of the unit is determined as follows:		—
	– Where the release height, h_0 , as determined in Clause GG.2, is equal to or greater than 1,8 m or the appliance is with integral circulation airflow, the effective height, H_r , is the room height in m but not more than 2,2 m unless h_0 is higher than 2,2 m.		N/A
	– In all other cases, the effective height, H_r , is the release height, h_0 , as determined in Clause GG.2.		N/A
	For room areas exceeding 250 m ² , m_{max} calculated with a room area (A) of 250 m ²		N/A
GG.10.4	Requirement for units with integral circulation airflow		—
GG.10.4.1	General		—
	The minimum air velocity and minimum airflow as follows:		—
	– Minimum airflow = 240 m ³ /h		N/A
	– There is no minimum circulation airflow velocity requirement for downwards airflow.		N/A
	– Minimum air velocity for upwards airflow		N/A
	– The unit air velocity (v) calculated as airflow divided by the nominal face area of the outlet. The grille area shall not be deducted.		N/A
	As an alternative, for airflow angles between 15 degrees and 90 degrees, the minimum air velocity (v_{min}) can be determined by linear interpolation of the values included in Table GG.5.		N/A
	Operation of circulation airflow comply with either GG.10.4.2 or GG.10.4.3.		N/A
GG.10.4.2	Continuous circulation airflow		—
	The indoor fan run continuously, other than for short periods for maintenance and service. The airflow shall be detected continuously or monitored continuously. Within 10 seconds in the event that the airflow is reduced below Q_{min} , the following actions taken:		—
	– warn user that airflow is reduced		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	– disable the compressor operation unless the compressor operation reduces the leak rate or the total amount released to the indoor space.		N/A
GG.10.4.3	Circulation airflow activated by a refrigerant leak detection system		—
	If a leak detection system is activated, the following actions taken and continued for at least 5 min after the leak detection system has reset:		—
	– energize the fan(s) of the appliance to deliver indoor airflow at or above the minimum airflow Q_{min} ;		N/A
	– disable the compressor operation unless the compressor operation reduces the leak rate or the total amount released to the indoor space.		N/A
GG.11	Ventilation for enhanced tightness refrigerating systems using A2L refrigerants		—
GG.11.1	General		—
	Ventilation shall be made to a place where sufficient air is available to dilute the leaked refrigerant such as outdoors or a large space.		N/A
	Where ventilation is to an indoor space, the total area of that space and the space in which the appliance is installed shall have a total room area not less than A_{min} according to the Formula (GG.32). If the opening area in GG.11.2 is not large enough, the measure of GG.11.3 taken with ventilation to the outdoors.		N/A
	The effective height, H_r , of the unit is determined as follows:		—
	– Where the release height, h_0 , as determined in Clause GG.2, is equal to or greater than 1,8 m or the appliance is with integral circulation airflow, the effective height, H_r , is the room height in m but not more than 2,2 m unless h_0 is higher than 2,2 m;		N/A
	– In all other cases, the effective height, H_r , is the release height, h_0 , as determined in Clause GG.2.		N/A
GG.11.2	Natural ventilation		—
	If natural ventilation is applied, the following met.		—
	– Openings for natural ventilation comply with GG.1.4.		N/A
	– Natural ventilation to outdoors is not allowed below ground level.		N/A
	– Natural ventilation from an occupied space not be made to outdoors.		N/A
	The minimum opening area for natural ventilation ($A_{nv,min}$) to an indoor space		N/A
	The minimum opening area for natural ventilation ($A_{nv,min}$) to an outdoor space		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.11.3	Mechanical ventilation		—
GG.11.3.1	Operation of mechanical ventilation		—
	Mechanical ventilation operated continuously or shall be switched on by a leak detection system.		N/A
	Operation shall be according to GG.8.3.1		N/A
GG.11.3.2	Required airflow		—
	For $(Q \times 0,25 \cdot LFL)/10 < 1$, the airflow of the mechanical ventilation shall be at least the quantity that satisfies the following formula for m_c		N/A
	For $(Q \times 0,25 \cdot LFL)/10 \geq 1$, the airflow shall be determined according the following formula for Q		N/A
GG.11.3.3	Mechanical ventilation openings		—
	The upper edge of the air extraction opening from the room located at a height equal to or below the refrigerant release point		N/A
	The mechanical ventilation air extracted from the space positioned relative to the mechanical ventilation air intake openings such that the makeup air will mix with the leaked refrigerant.		N/A
	Where circulation airflow according to GG.10.4 is not provided, the openings shall comply with GG.8.3.3.		N/A
GG.12	Safety shut-off valves for enhanced tightness refrigerating systems using A2L refrigerants		—
	Safety shut-off valves positioned to enable access for maintenance by an authorized person.		N/A
	For appliances which are not on the lowest underground floor, where the release height, h_0 , as determined in Clause GG.2 is equal to or greater than 1,8 m or the appliance is with integral circulation airflow, the releasable charge as determined by Annex QQ		N/A
GG.13	Safety alarms for enhanced tightness refrigerating systems using A2L refrigerants		—
GG.13.1	General		—
	If an alarm is employed to warn of a leak in the occupied space, the alarm shall warn of a refrigerant leak in accordance with GG.13.2. The alarm shall be turned on by the signal from the leak detection system. The alarm also alert an authorized person to take appropriate action.		N/A
GG.13.2	Alarm system warning		—
GG.13.2.1	General		—

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Clause	Requirement + Test	Result - Remark	Verdict
	The alarm system warn both audibly and visibly, such as both a loud (15 dBA above the background level) buzzer and a flashing light.		N/A
GG.13.2.2	Alarm for general occupancy		—
	At least one alarm inside the occupied space be installed. For the occupancy listed below, the alarm system shall also warn at a supervised location, such as the night porter's location, as well as the occupied space.		N/A
	Rooms, parts of buildings, building where		N/A
	sleeping facilities are provided,		N/A
	people are restricted in their movement,		N/A
	an uncontrolled number of people are present, or		N/A
	to which any person has access without being personally acquainted with the necessary safety precautions.		N/A
GG.14	Allowable charge for enhanced tightness refrigerating systems using A2 or A3 refrigerant		—
GG.14.1	General		—
	Clause GG.14 is applicable to enhanced tightness refrigerating systems in compliance with 22.125 using A2 or A3 refrigerants with refrigerant charge $m_1 < m_c \leq m_2$.		N/A
GG.14.2	Requirement for enhanced tightness units without integral circulation airflow		—
	For enhanced tightness refrigerating systems, the maximum refrigerant charge in a room in accordance with the following:		—
	$m_{max} = CF \times LFL \times A \times h_0$		N/A
	or the required minimum room area A_{min} of installed appliance with refrigerant charge m_c in accordance with the following;		—
	$A_{min} = m_c / (CF \times LFL \times h_0)$		N/A
GG.14.3	Requirement for enhanced tightness units with integral circulation airflow		—
GG.14.3.1	General		—
	When the fan integrated into an appliance is continuously operated or operation is initiated by a leak detection system with sufficient airflow rate, the maximum refrigerant charge can be increased or minimum room area can be reduced according to the following.		N/A
	For enhanced tightness refrigerating systems, the maximum refrigerant charge in a room in accordance with the following:		—
	$m_{max} = CF \times LFL \times A \times 2,2$		N/A
	or the required minimum room area A_{min} of installed appliance with refrigerant charge m_c in accordance with the following;		—
	$A_{min} = m_c / (CF \times LFL \times 2,2)$		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The minimum circulation airflow determined as:		—
	$Q_{\min} = 3600 \frac{5Y\sqrt{A_o} \dot{m}_{\text{leak}}^{3/4}}{h_o^{1/4} [LFL \times (1-CF)]^{5/8}}$		N/A
	For refrigerants not listed in Table GG.6, leak mass flow rate (\dot{m}_{leak}) is calculated from:		—
	$\dot{m}_{\text{leak}} = \left(\frac{167}{432}\right) \dot{M}_s$		N/A
	The choked flow mass flux, \dot{M}_s , is:		—
	$\dot{M}_s = 0,61 \times \sqrt{k\rho_o p_o} \left(\frac{2}{k+1}\right)^{\frac{k+1}{k-1}}$		N/A
	Operation of circulation airflow comply with either GG.14.3.2 or GG.14.3.3.		N/A
GG.14.3.	Continuous circulation airflow		—
	The indoor fan run continuously, other than for short periods for maintenance and service. The airflow monitored continuously. Within 10 seconds in the event that the airflow is reduced below Q_{\min} , the following actions taken:		—
	– warn user that airflow is reduced;		N/A
	– disable the compressor operation unless the compressor operation reduces the leak rate or the total amount released to the indoor space.		N/A
GG.14.3.3	Circulation airflow activated by a leak detection system		—
	If a leak detection system is activated, the following actions taken and continued for at least 5 min after the leak detection system has reset:		—
	– energize the fan(s) of the appliance to deliver indoor airflow at or above the minimum airflow Q_{\min} ;		N/A
	– disable the compressor operation unless the compressor operation reduces the leak rate or the total amount released to the indoor space.		N/A
JJ	ANNEX JJ - ALLOWABLE OPENING OF RELAYS AND SIMILAR COMPONENTS TO PREVENT IGNITION OF A2L REFRIGERANTS		—
JJ.1	General		—
	Annex JJ is applicable to electric components or devices of appliances using A2L refrigerants.		N/A
	Annex JJ defines the maximum size of openings in relays and similar components that prevents flame propagation to outside. A relay and similar components that comply with the requirements of this annex are not considered as a potential ignition source for A2L refrigerants.		N/A
JJ.2	Definition of the opening		—

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Clause	Requirement + Test	Result - Remark	Verdict
	The effective diameter is the equivalent diameter of a circular opening that has the same quenching effect to an opening of any shape. The effective diameter of the opening of relays and similar components is defined as d_{eff}		N/A
JJ.3	Determination of maximum allowable opening		—
	Relays and similar components not be considered as a potential ignition source if the effective diameter of all holes complies with the following equation:		N/A
	Alternatively, a type test can be used to determine if relays and similar components are not a potential ignition source. This type test show that there is no propagation of a flame from any contact inside of the relay to the outside, for the concentration of the refrigerant as used for determining the maximum burning velocity. Where the type test is used, the effective diameter limit is 12 mm.		N/A
KK	ANNEX KK - TEST METHOD FOR HOT SURFACE IGNITION TEMPERATURE FOR A2L		—
KK.1	General		—
	The hot surface ignition temperature of A2L refrigerants shall be determined according to Annex KK. The refrigerants shall be sprayed onto a horizontal flat plate surface which is set at the test temperature.		N/A
	The test system consists of a hot plate, a spray tube and a chimney. Figure KK.1, Figure KK.2 and Figure KK.3 display the set-up of the test apparatus.		N/A
KK.2	Test equipment requirements		—
	The hot plate shall have the following characteristics. The hot plate shall consist of a flat stainless steel plate with the dimensions:		N/A
	Diameter: 50 mm \pm 2,0 mm		N/A
	Thickness: 6 mm $-0/+2,0$ mm		N/A
	Surface texture: ISO 1302		N/A
	The hot plate positioned horizontally. The heaters shall provide uniform heating of the plate. All surfaces other than the test surface should be thermally insulated using ceramic fibre board capable to withstand 815 °C. This insulation shall be such that vapours cannot be ignited by other than the hot plate top surface.		N/A
	Spray system shall consist of a liquid supply, two valves (trap liquid volume of 1,0 cm ³ \pm 0,2 cm ³), tubing for directing the spray. The spray tube from valve to the end have the following dimensions:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Length: 250 mm ± 5,0 mm		N/A
	Outer diameter: ≤ 4 mm		N/A
	Inner diameter: 1,6 mm ± 0,1 mm		N/A
	Use a type K thermocouple with the individual wires spot welded on opposite sides of the centre of the upper surface of the hot plate.		N/A
	A borosilicate or quartz glass chimney shall be 230 mm ± 10 mm long and 70 mm ± 10 mm inner diameter . The chimney shall be supported so that it is vertically mounted and has a gap of 2,5 mm ± 0,2 mm between its bottom edge and the top on the insulation.		N/A
KK.3	Procedure		—
	The ambient conditions of the test shall be set at 23 °C ± 3 °C and 50 % RH ± 5 % RH. The chimney and hot plate establishes a constant air velocity during the test. This airflow dilutes the vapours so that an optimum (near stoichiometric) concentration for ignition develops over the hot surface.		N/A
	The test performed in a laboratory fume hood. The test apparatus including the chimney top shall be located in the laminar flow region of the laboratory fume hood so the chimney flow is not disturbed.		N/A
	The end of the spray refrigerant line placed 40 mm ± 10 mm above the hot plate and shall point at the centre of the hot plate. The tube shall be perpendicular to the horizontal plate.		N/A
	Operating steps:		N/A
	1) The hot plate heated until a steady test temperature is maintained for 5 min. The plate temperature kept within ±15 °C of the set-point during the test.		N/A
	2) Refrigerant used for the test the nominal composition (NC) per ISO 817. Refrigerant from the liquid phase shall be trapped between valve 1 and valve 2. Open valve C to spray the liquid refrigerant onto the centre of the hot plate.		N/A
	3) Observe and record if ignition (flames) occurs or does not occur within 3 min after release.		N/A
	Care shall be given to avoid vapours getting under the insulation, any ignition outside of the chimney is due to ignition on surfaces hotter than the test surface.		N/A
	4) A minimum of 5 min of ventilation shall be allowed between runs to clear out reaction products and residual refrigerant.		N/A
	5) Perform a minimum of 5 repetitions trials at each temperature being tested.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	6) The temperature of the hot plate shall be set at 800 °C, if ignition occurs, then the plate temperature is to be reduced in increments of 20 °C until no ignition occurs in five trials. This temperature is to be recorded as the hot surface ignition temperature (HSIT).		N/A
KK.4	Test report		—
	The results shall be recorded in a test report. The report shall include all the information necessary for the interpretation of the test and all information required by the method used. The report include:		N/A
	documentation with the sample identity and composition,		N/A
	temperature where ignition did not occur and where ignition did occur if applicable.		N/A
	The reported hot surface ignition temperature shall be highest temperature with no ignition in five trials.		N/A
LL	ANNEX LL - REFRIGERANT DETECTION SYSTEMS FOR FLAMMABLE REFRIGERANTS		—
LL.1	General		—
	This annex applies to refrigerant detection systems for use in appliances using flammable refrigerants.		N/A
	Refrigerant detection systems give an output signal at a predetermined alarm set point in response to leaked refrigerant.		N/A
	Refrigerant detection systems may respond directly to the refrigerant concentration or may respond to gases being displaced by the refrigerant		N/A
	In this annex, where LFL is referenced and for refrigerant used for all tests, the composition the nominal composition as specified in Annex BB.		N/A
	The refrigerant detection systems capable of detecting refrigerant concentration above the alarm set point, for the refrigerant marked on the appliance, over the full range of operating temperature and humidity as specified by the appliance manufacturer. Worst case combined effects of declared manufacturing tolerances and drift considered.		N/A
LL.2	Test gases and default test condition		—
	For the test in Clause LL.3, the test gas 24 % to 25 % of LFL.		N/A
	For the test in Clause LL.4, the low ratio test gas (3 ± 0,3) % of LFL below the alarm set point declared by the manufacturer, but no lower than (1,1 ± 0,1) % of LFL.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	For the test in Clause LL.4, the high ratio test gas ($3 \pm 0,3$) % of LFL above the alarm set point declared by the manufacturer, but no higher than ($24,7 \pm 0,3$) % of LFL.		N/A
	For the tests in LL.5.9, Clause LL.6, Clause LL.7, Clause LL.8, Clause LL.9, and Clause LL.10, the low ratio test gas ($6 \pm 0,6$) % of LFL below the alarm set point declared by the manufacturer, but no lower than ($1,1 \pm 0,1$) % of LFL.		N/A
	For the tests in LL.5.9, Clause LL.6, Clause LL.7, Clause LL.8, Clause LL.9, and Clause LL.10, the high ratio test gas ($6 \pm 0,6$) % of LFL above the alarm set point declared by the manufacturer, but no higher than ($24,7 \pm 0,3$) % of LFL.		N/A
	Table LL.1 illustrates the relationship between alarm set point, tolerances, and test gas concentrations.		N/A
	For the test in Clause LL.11, the test gas ($110 \pm 0,5$) % of the stoichiometric concentration.		N/A
LL.3	Response time of the refrigerant detection system		—
	Refrigerant detection system give an output signal within 30 seconds when the refrigerant sensor is put into refrigerant concentration of 25 % of LFL.		N/A
LL.4	Refrigerant detection system calibration and short-term stability		—
	The refrigerant detection systems have an alarm set point and be calibrated from the factory for the refrigerant marked on the appliance.		N/A
	The refrigerant detection system consistently give an output signal at the alarm set point with a tolerance of $\pm 2,5$ % of LFL, but not lower than 1 % of LFL.		N/A
	The alarm set point not be adjustable. Recalibration other than self-recalibration not be allowed.		N/A
LL.5	Selectivity test and poisoning test		—
LL.5.1	Refrigerant detection system including refrigerant sensors not have false or nuisance trips, and not be subject to poisoning.		N/A
	After being exposed to the gases in Table LL.2, the refrigerant detection system consistently give an output signal at the alarm set point with a tolerance of ± 5 % of LFL, but not lower than 1 % of LFL.		N/A
LL.5.2 - LL.5.9	Compliance check		N/A
LL.6	Refrigerant poisoning and oil spray test		—
LL.6.1	General		—

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Clause	Requirement + Test	Result - Remark	Verdict
	The refrigerant detection system not be subject to poisoning or damage by the refrigerant(s) marked on the appliance mixed with oil.		N/A
	After being exposed to the refrigerant(s) marked on the appliance mixed with oil, the refrigerant detection system		—
	– consistently give an output signal at the alarm set point with a tolerance of ± 5 % of LFL, but not lower than 1 % of LFL, and give an output signal within 60 seconds when the refrigerant sensor is put into refrigerant concentration of 25 % of LFL, or		N/A
	– give an output signal indicating a refrigerant leak and notify the user that the refrigerant sensor needs to be replaced. The output signal continue until the refrigerant sensor has been replaced.		N/A
LL.6.2	Test set-up		—
LL.6.3	Test procedure		—
LL.6.4	Check of alarm set point and response time		—
LL.7	Long term stability		—
	Over a period of 90 days, the refrigerant detection system consistently give an output signal at the alarm set point with a tolerance of ± 5 % of LFL, but not lower than 1 % of LFL.		N/A
LL.8	Humidity test		—
	Over the humidity range of the appliance, the refrigerant detection system consistently give an output signal at the alarm set point with a tolerance of ± 5 % of LFL, but not lower than 1 % of LFL.		N/A
LL.9	Temperature test		—
	Over the temperature range of the appliance, the refrigerant detection system consistently give an output signal at the alarm set point with a tolerance of ± 5 % of LFL, but not lower than 1 % of LFL		N/A
LL.10	Vibration requirement		—
	Vibration requirements this clause apply for refrigerant sensors. Vibration requirements for refrigerant sensors need not apply to the entire appliance.		N/A
	Refrigerant sensors withstand vibration without breakage or damage of parts and continue to function.		N/A
	After the vibration test, the refrigerant detection system give an output signal at the alarm set point with a tolerance of ± 5 % of LFL, but not lower than 1 % of LFL.		N/A
LL.11	Ignition test		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Refrigerant sensors not be a source of ignition for leaked refrigerant.		N/A
LL.12	Refrigerant detection system self-test routine		—
	The refrigerant detection system include a means for self-testing to determine if a refrigerant sensor electrical malfunction has occurred. The self-test shall include missing refrigerant sensor (open circuit), by-passed refrigerant sensor (shorted circuit), and refrigerant sensor output out of range.		N/A
	The test run at least every hour and if a failure is detected, the refrigerant detection system provide a dedicated notification to the end user that replacement is required.		N/A
	If the refrigerant sensor is a limited life refrigerant sensor and requires replacement after a given period, then the refrigerant detection system provide notification to the user that replacement is required at the end of the specified life.		N/A
LL.13	Serviceability		—
	Refrigerant sensors accessible for inspection and replacement. Refrigerant sensors for replacement specified by the appliance manufacturer.		N/A
LL.14	Refrigerant sensor identification		—
	The refrigerant sensors or the parts of the appliance containing refrigerant sensors marked or tagged with:		—
	– "service indicator; read technical manual" (symbol ISO 7000-1659 (2004-01));		N/A
	– year of manufacturing;		N/A
	– reference number or other means for identifying the refrigerant sensor.		N/A
	The marking visible when servicing the refrigerant sensors.		N/A
MM	ANNEX MM - REFRIGERANT SENSOR LOCATION CONFIRMATION TEST		—
MM.1	General		—
	This test is applicable to appliances with refrigerant detection systems other than remote detection		N/A
	The purpose of this test is to demonstrate that the refrigerant sensor(s) of the refrigerant detection system(s), where required, will adequately detect refrigerant, in the event of a leak when installed in the location specified by the manufacturer. Compliance will be determined by measurement of the refrigerant concentration in the location of the refrigerant sensor.		N/A
MM.2	Test methods		N/A
MM.2.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The composition of the refrigerant used for the test shall be taken as the nominal composition as specified in Annex BB. Where LFL is referenced in this annex, the LFL shall be taken at the nominal composition as specified in Annex BB.		N/A
	The following appliance operating states shall be tested:		N/A
	– fan OFF, and		N/A
	– fan ON.		N/A
	During the test, the appliance is modified by introducing a simulated leak through a capillary tube. The simulated leak is applied for 1 min.		N/A
	A leakage of refrigerant in the refrigerating system is simulated at the most unfavourable potential leak point as determined in Clause FF.1.		N/A
	An unfavourable potential leak point is a potential leak point where the path between the leakage point and the point of detection location is more distant or more obstructed.		N/A
	The refrigerant is injected at the most critical point and the most unfavourable direction at a temperature between 15 °C and 35 °C.		N/A
	The capillary tube shall discharge refrigerant into a chamber or similar device which will reduce the refrigerant velocity into the appliance or space.		N/A
	Care shall be taken that the installation of the capillary tube does not unduly influence the results of the test and that the structure of the appliance does not unduly influence the results of the test.		N/A
MM.2.2	Test with fan OFF		N/A
	The test shall be performed with the fan integrated into the appliance off.		N/A
	The leak rate shall be maintained at \dot{m}_{leak} in g/s		N/A
	$\dot{m}_{\text{leak}} = 4 \times \text{LFL}$		N/A
	If the minimum airflow specified by the manufacturer is not less than the minimum airflow specified in GG.2.2, Clause GG.9 or Clause GG.10, as applicable, testing in the fan ON mode is not required.		N/A
MM.2.3	Test with fan ON		N/A
	If the unit has an airflow setting less than the minimum airflow rate as defined in GG.2.2 or Clause GG.9, as applicable, then the fan ON test shall be performed on the highest available airflow setting of the unit below this minimum airflow rate.		N/A
	For enhanced tightness refrigerating systems with A2L refrigerants in compliance with 22.125, if the unit has an airflow setting less than 20/LFL in m ³ /h, then the fan ON test shall be performed on the highest available airflow setting below 20/LFL in m ³ /h.		N/A
	The leak rate shall be maintained at \dot{m}_{leak} in g/s:		N/A
	$\dot{m}_{\text{leak}} = \text{CF} \times \text{LFL} \times \text{Q} \times 1\,000/3\,600$, but not less than $4 \times \text{LFL}$		N/A
MM.2.4	Test set-up		N/A
	The appliance shall be installed according to the instructions. Appliances that can be installed in different positions shall be tested in all positions allowed by the manufacturer. The supply and return openings shall not be covered and the manufacturer's recommended air-filters shall be installed per instructions.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The test is conducted in a room that is draught-free and of sufficient size to conduct the test without influencing the results by accumulation of leaked refrigerant into the room during the test.		N/A
	The minimum room area A_t is:		N/A
	$A_t = 1,2 \times \dot{m}_{leak} / (LFL \times ht)$		N/A
MM.2.5	Instrumentation		N/A
	The instrument used for monitoring the refrigerant gas concentration shall have a fast response to the gas concentration, at least 90 % response within 10 seconds (time constant 4,3 seconds) and shall be located as close to the intended refrigerant sensor location as possible, but care should be taken not to unduly influence the results of the test.		N/A
	The sampling interval shall be 10 seconds or less.		N/A
MM.2.6	Compliance criteria		N/A
	The measured concentration of refrigerant gas at the location of the refrigerant detection system refrigerant sensor shall exceed the alarm set point of the refrigerant detection system used within 90 seconds from the start of the release. Where multiple refrigerant sensors are applied with the refrigerant detection system, if the concentration at any single refrigerant sensor location exceeds the alarm set point of the refrigerant detection system used within 90 seconds from the start of the release, the refrigerant detection system refrigerant sensor location shall be considered in compliance.		N/A
NN	ANNEX NN - FLAME ARREST ENCLOSURE VERIFICATION TEST FOR A2L REFRIGERANTS		—
NN.1	General		—
	Annex NN is applicable to appliances using A2L refrigerants		N/A
	A flame arrest enclosure is a device or assembly enclosing components with electrical contacts that are made and broken, or similar devices which can become a source of ignition which will withstand an internal ignition of a A2L refrigerant vapour which can enter it without suffering damage and without transmission of flame from the internal ignition to an external A2L refrigerant vapour of the same refrigerant.		N/A
	Electrical components enclosed in a flame arrest enclosure in compliance with the test procedures below shall not be considered as a source of ignition.		N/A
	If all openings in the enclosure comply with Annex JJ, the enclosure is deemed to comply.		N/A
NN.2	Test method		N/A
NN.2.1	The test shall be conducted on a single sample enclosure or the complete appliance. The test shall be conducted one time.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
NN.2.2	Representative electrical components and related wiring as intended in the final end usage in the appliance shall be installed in the enclosure. The enclosure shall be positioned as it would be in the appliance and all construction critical to ensure non-transmission of flames shall be included.		N/A
NN.2.3	If panels or similar means of access are intended to be opened or removed for routine service and maintenance, the panels shall be removed or opened ten times prior to conducting the test.		N/A
NN.2.4	Dielectric strength tests per 16.3 shall be conducted prior to the test.		N/A
NN.2.5	The ambient test conditions shall be at 32 °C dry-bulb temperature and 27 °C dew point temperature.		N/A
NN.2.6	The enclosure shall be filled with and surrounded by a stoichiometric mixture of the intended refrigerant.		N/A
NN.2.7	The flammable refrigerant vapour inside the enclosure shall be ignited in the most unfavourable position. The ignition shall be provided using a 15 kV source producing a 30 mA spark across a 6,4 mm gap for 0,3 s ± 0,05 s or equivalent. Ignition of the refrigerant inside the enclosure shall be confirmed visually or by any other method.		N/A
NN.2.8	Dielectric strength tests per 16.3 shall be conducted after the test.		N/A
NN.2.9	The enclosure shall be considered in compliance with this annex if all of the following conditions are met.		N/A
	– There shall be no ignition of the refrigerant vapour outside the enclosure.		N/A
	– There shall be no visible signs of damage outside the enclosure.		N/A
	– The dielectric strength after the test shall be in compliance with the requirements of this standard.		N/A
	– The enclosure shall be capable of performing all intended primary safety functions, including protection from hazardous live parts and ingress of water, if applicable.		N/A
PP	ANNEX PP - LEAK DETECTION SYSTEM CONFIRMATION TEST FOR FLAMMABLE REFRIGERANTS		—
PP.1	General		—
	This test is applicable to appliances using flammable refrigerants with leak detection systems which initiate safety measures upon detection when required according to Annex GG. This test is not applicable to refrigerant detection systems using remote refrigerant sensors.		N/A
	The leak detection system comply with the following:		—
	– for leak detection systems using refrigerant detection systems, the requirements in Clause PP.2 shall apply;		N/A
	– for leak detection systems using ultrasonic based detection systems, the requirements of Clause PP.2 apply;		N/A
	– for leak detection systems using system parameter-based detection systems, the requirements of Clause PP.3 apply.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	For the low leak rate of PP.2.2.2 and the leak rate of PP.2.2.3 and the small leak orifice of PP.3.2, the actions required by Annex GG completed within 90 seconds of the initiation of the simulated leak.		N/A
	For the high leak rate of PP.2.2.2 and the large leak orifice of PP.3.3, the actions required by Annex GG shall be completed within 30 seconds of the initiation of the simulated leak. For appliances where the release height h_0 as determined in Clause GG.2 is less than 1 m, the actions required by Annex GG completed within 15 seconds of the initiation of the simulated leak.		N/A
PP.2	Test method for leak detection systems using refrigerant detection systems and ultrasonic based detection systems		N/A
PP.2.1	Test set-up		N/A
PP.2.1.1	General		N/A
	The appliance is modified by introducing a simulated leak through an orifice or capillary tube, as appropriate. The simulated leak shall be maintained until the actions required by Annex GG are completed.		N/A
	A leak shall be simulated at the most unfavourable potential leak point as determined in Clause FF.1 from where leaked refrigerant could then enter an indoor space. An unfavourable potential leak point is a potential leak point where the path between the potential leak point and the point of detection location is more distant or more obstructed. The test shall be conducted at the leak rates defined in PP.2.2 as applicable.		N/A
	The composition of the refrigerant used for the test shall be taken as the nominal composition as specified in Annex BB. Where LFL is referenced in this annex, the LFL shall be taken at the nominal composition as specified in Annex BB.		N/A
PP.2.1.2	Simulation of leak		N/A
	A leakage of refrigerant in the refrigerating system is simulated by injecting vapour at the potential leak points identified in PP.2.1.1.		N/A
	The refrigerant shall be released such that the pressure at the inlet to release orifice is not less than 300 kPa (gauge) in order to achieve choked flow.		N/A
	Care shall be taken that the installation of the orifice or capillary does not unduly influence the results of the test.		N/A
PP.2.1.3	Installation conditions		N/A
	Appliances that can be installed in different positions shall be tested in all positions allowed by the instructions. The supply and return openings shall not be covered and the recommended air-filters shall be installed per instructions.		N/A
PP.2.1.4	Test room		N/A
	The test is conducted in a room that is of sufficient size to conduct the test without influencing the results by accumulation of leaked refrigerant into the room during the test.		N/A
	The minimum room area A_t is:		N/A
	$A_t = 2,4 \times \dot{m}_{leak} / (LFL \times ht)$		N/A
PP.2.2	Test procedure		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
PP.2.2.1	General		N/A
	During this test, following appliance operating states shall be tested:		N/A
	– fan OFF, and		N/A
	– fan ON.		N/A
PP.2.2.2	Fan OFF		N/A
	The low leak rate shall be:		N/A
	$\dot{m}_{leak} = 4 \times LFL$		N/A
	The high leak rate shall be:		N/A
	$\dot{m}_{leak} = 4,17 \times m_c$		N/A
PP.2.2.3	Fan ON		N/A
PP.2.2.3.1	General		N/A
	Fan ON test shall be conducted if the actions required by Annex GG in the event of detection of a leak is circulation airflow and/or mechanical ventilation.		N/A
	If the minimum airflow specified by the manufacturer is not less than the minimum airflow specified in Annex GG, then the fan ON test is not required.		N/A
	If the minimum airflow specified is less than the minimum airflow specified in Annex GG, then the fan ON test shall be performed on the highest available airflow setting of the unit below this minimum airflow rate.		N/A
PP.2.2.3.2	Enhanced tightness refrigerating systems		N/A
	For enhanced tightness refrigerating systems with A2L refrigerants in compliance with 22.125, If the unit has an airflow setting less than 20/LFL in m ³ /h, then the fan ON test shall be performed on the highest available airflow setting below 20/LFL in m ³ /h.		N/A
	For enhanced tightness refrigerating systems with A2 and A3 refrigerants, the simulated leak mass flow shall be:		N/A
	$\dot{m}_{leak} = \left[\frac{Q h_o^{1/4} [LFL \times (1 - CF)]^{5/8}}{3\,600 \times 5Y \sqrt{A_o}} \right]^{4/3}$		N/A
PP.2.2.3.3	Enhanced tightness refrigerating systems		N/A
	For non-enhanced tightness refrigerating systems with A2L refrigerants the leak rate shall be maintained at:		N/A
	$\dot{m}_{leak} = CF \times LFL \times Q \times 1\,000/3\,600$, but not less than $4 \times LFL$		N/A
	For non-enhanced tightness refrigerating systems with A2 and A3 refrigerants, the simulated leak mass flow shall be:		N/A
	$\dot{m}_{leak} = \frac{1000 \times Q m_c^{1/4} LFL^{3/4}}{3\,600 \times 8Y \sqrt{A_o}} \left(\frac{1 - CF}{CF^{1/4}} \right)$		N/A
PP.3	Test method for leak detection systems using system parameter based detection		N/A
PP.3.1	The appliance is modified by introducing a leak orifice in the system. The leak shall continue until the actions required by Annex GG are completed.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The orifice shall be positioned at the least favourable location of the refrigerant-containing parts of the appliance intended to be located indoors. The test shall be conducted with each of the leak orifices defined in PP.3.2 and PP.3.3.		N/A
	The system shall be charged with the refrigerant type and amount as stated in the instructions.		N/A
	The composition of the refrigerant used for the test shall be taken as the nominal composition as specified in Annex BB. Where LFL is referenced in this annex, the LFL shall be taken at the nominal composition as specified in Annex BB.	N/A	—
PP.3.2	The small leak orifice to within $\pm 0,1$ mm ² shall be:		N/A
	$A_o = 4 \times LFL / 1,7$		N/A
P.3.3	The large leak orifice to within $\pm 0,1$ mm ² shall be:		N/A
	$A_o = 4 \times mc / 0,8$		N/A
PP.3.4	The system shall be operated in the following operating states as appropriate:		N/A
	a) compressor off with indoor temperature 27 °C and outdoor temperature 35 °C, with indoor fan ON;		N/A
	b) compressor off with indoor temperature 27 °C and outdoor temperature 35 °C, with indoor fan OFF;		N/A
	c) cooling mode with		N/A
	– the compressor running at maximum speed at the specified temperature, and		N/A
	– highest outdoor air temperature and highest airflow allowed by the controls, or highest entering fluid temperature and highest fluid flow rate, and		N/A
	– highest indoor air temperature and highest indoor fan airflow allowed by the controls, or highest entering fluid temperature and highest fluid flow rate;		N/A
	d) heating mode with		N/A
	– the compressor running at maximum speed at the specified temperature, and		N/A
	– highest outdoor air temperature and highest airflow allowed by the controls, or highest entering fluid temperature and highest fluid flow rate, and		N/A
	– highest indoor air temperature and highest indoor fan airflow allowed by the controls, or highest entering fluid temperature and highest fluid flow rate.		N/A
	The test is for the condition where the leak orifice is positioned at the most critical location, being the one that yields the greatest time before the actions required by Annex GG are completed.		N/A
	Care shall be taken that the installation of the orifice does not unduly influence the results of the test.		N/A
QQ	ANNEX QQ - METHODS FOR DETERMINING RELEASABLE CHARGE		N/A
QQ.1	General		N/A
QQ.2	Determination of releasable charge by a simulated lea		N/A
QQ.2.1	Test set-up		N/A
QQ.2.2	Test method		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
QQ.3	Determination of releasable charge by a simulated leak for refrigerating systems complying with Clause GG.10		N/A
QQ.3.1	General		—
	The releasable charge, mrl, determined by the test of QQ.3.2 and QQ.3.3.		N/A
QQ.3.2	Test set-up		—
	Install the appliance, including safety shut-off valves, according to the instructions, in the smallest room as specified by the instructions, with the set-up that will create the largest releasable charge for that room.		N/A
	The refrigerating system evacuated prior to each test, and then charged with refrigerant equal to mc, where mc is the refrigerant charge in kg.		N/A
	A calibrated leak opening installed in the refrigerating system that would result in the greatest amount of refrigerant released in the occupied space. A valve to enable opening and closing of the calibrated leak opening installed between the appliance and the calibrated leak opening. The calibrated leak shall be at the point in the circuit that has the highest saturated pressure in the indoor unit during steady state operation.		N/A
	The calibrated leak opening vent into a volume at atmospheric pressure.		N/A
	The calibrated opening a capillary or orifice that leaks at 2,8 g/s from saturated liquid at a saturated pressure of 63 °C.		N/A
QQ.3.3	Test method		—
	The refrigerating system operate according to the operating state until steady state is reached for at least 30 minutes, prior to opening the valve of the calibrated leak opening.		N/A
	The test repeated at least 3 times and the releasable charge 2 standard deviations above the mean result		N/A
	The valve to the calibrated leak opening is opened.		N/A
	The refrigerating system shall operate normally for tr1 time with the calibrated leak open, where tr1 is the time before leak is detected as determined in Clause QQ.5.		N/A
	After the tr1 time, the refrigerant charge limited system simulate a detected leak.		N/A
	After the safety shut-off valves are closed, the remaining charge mrm contained in the part of the refrigerating system which is closed by the safety shut-off valves is measured.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The releasable charge (in kg) is: $mrl = mc - mrm$		N/A
QQ.4	Determination of releasable charge by calculation and test for refrigerating systems complying with Clause GG.10		—
QQ.4.1	General		—
	The releasable charge, mrl, calculated as the sum of the refrigerant released in the separate stages according to the following: $mrl = tr1 \times 0,0028 + mr2 + mr3$		N/A
QQ.4.2	Refrigerant release between detection and closing the safety shut-off valves		—
	The refrigerant amount released between the leak detection system giving an output signal and closing the safety shut-off valves, mr2, determined as: $mr2 = 0,0028 \times tcl$		N/A
QQ.4.3	Determination of mr3		—
QQ.4.3.1	General		—
	To determine the releasable charge after closing the shut-off valves, mr3, which can leak into the occupied space, determine the releasable charge for each part (unit or piping), mr3,i, that can leak into the occupied space after closing the shut-off valves by one of the following methods:		—
	– determine apparent density, ppart,i, by measuring the pressure according to QQ.4.3.2		N/A
	– determine apparent density, ppart,i, by applying default values according to QQ.4.3.3;		N/A
	– determine apparent density, ppart,i, according to QQ.4.3.4.		N/A
	A part shall be the piping or the indoor unit between the field connection points.		N/A
	The releasable charge after closing the shut-off valves, mr3, the sum of the charge of each part that can leak into the occupied space after closing the shut-off valves: $mr3 = \sum V_{part,i} \times p_{part,i}$		N/A
QQ.4.3.2	Determine apparent density, ppart,i, by measuring the pressure		—
	To determine the apparent density, ppart,i, of the releasable charge after closing the shut-off valves for the evaluated part of the system by measuring the pressure, the following procedure applied.		N/A
QQ.4.3.3	Determine apparent density, ppart,i, by default values		—
	When no test is executed, the following method applied.		N/A
	The refrigerant state (liquid, gas or mixture) for the evaluated part of the system determined.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The apparent density for the evaluated part of the system, $p_{part,i}$, shall be determined as:		—
	– for liquid piping: the density of saturated liquid at 10 °C;		N/A
	– for gas piping: the density of saturated gas at 42 °C;		N/A
	– for piping containing mixture of gas and liquid: the density of saturated liquid at 10 °C;		N/A
	– for indoor units: the density of saturated liquid at 10 °C.		N/A
QQ.4.3.4	Determine apparent density, $p_{part,i}$, by measuring the recovered refrigerant amount from the unit or piping		—
	To determine the apparent density, $p_{part,i}$, of the releasable refrigerant after closing the shut-off valves for the evaluated indoor unit or piping by measuring the recovered refrigerant amount, the following procedure applied.		N/A
	Shut-off valves for testing installed upstream and downstream of the part where the apparent density is measured. Shut-off valves for testing shall be of the same type as the safety shut-off valves used for the appliances. The action to shut-off made in accordance with the normal operation of the safety shut-off valves.		N/A
QQ.5	Time before the leak is detected, $tr1$		—
QQ.5.1	General		—
	The time before a leak is detected, $tr1$, in seconds (s) is determined by one of the following:		—
	– where the refrigerant sensor location is in compliance with Annex MM when tested at the maximum airflow for the operating state, QQ.5.2 applies;		N/A
	– where the leak detection system is in compliance with Annex PP, QQ.5.2 applies;		N/A
	– for all other cases, QQ.5.3 applies.		N/A
QQ.5.2	Determination of $tr1$ by default time		—
	The time before a leak is detected, $tr1$, in seconds (s) is determined by one of the following:		—
	– where the refrigerant sensor location is in compliance with Annex MM when tested at the maximum airflow for the operating state, QQ.5.2 applies;		N/A
	– where the leak detection system is in compliance with Annex PP, QQ.5.2 applies;		N/A
	– for all other cases, QQ.5.3 applies.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
QQ.5.2	Determination of tr1 by default time		—
	The time for the leak detection system to give an output signal, tr1, 120 s.		N/A
QQ.5.3	Determination of tr1 based on effective room concentration		—
	The time for the refrigerant detection system to give an output signal, tr1, in seconds determined as: tr1 = (Hr × Amin × LFL × Cset / 0,002 8) + 30		N/A
QQ.6	Test conditions for releasable charge limited systems		—

10.1	TABLE: Power input deviation					P
Input deviation of/at:	P rated (W)	P measured (W)	ΔP	Required ΔP	Remark	
230 V, 50 Hz	1200	1138	-5,2 %	+15%	KF-9GW/C1-100 Cooling	
230 V, 50 Hz	1600	1722	7,6 %	+15%	KF-12GW/C1-100 Cooling	
230 V, 50 Hz	2600	1549	-40,4 %	+15%	KF-18GW/C1-100 Cooling	
230 V, 50 Hz	3000	2616	-12,8 %	+15%	KF-24GW/C1-100 Cooling	
230 V, 50 Hz	5000	2183	-56,3 %	+15%	KF-30GW/C1-100 Cooling	
230 V, 50 Hz	1200	1256	4,7 %	+15%	KFR-9GW/H1-100 Cooling	
230 V, 50 Hz	1250	1317	5,4 %	+15%	KFR-9GW/H1-100 Heating	
230 V, 50 Hz	1600	1616	1,0 %	+15%	KFR-12GW/H1-100 Cooling	
230 V, 50 Hz	1700	1715	0,9 %	+15%	KFR-12GW/H1-100 Heating	
230 V, 50 Hz	2600	1709	-34,3 %	+15%	KFR-18GW/H1-100 Cooling	
230 V, 50 Hz	2700	1513	-44,0 %	+15%	KFR-18GW/H1-100 Heating	
230 V, 50 Hz	3000	2788	-7,1 %	+15%	KFR-24GW/H1-100 Cooling	
230 V, 50 Hz	3200	2231	-30,3 %	+15%	KFR-24GW/H1-100 Heating	
230 V, 50 Hz	5000	2687	-46,3 %	+15%	KFR-30GW/H1-100 Cooling	
230 V, 50 Hz	5200	2194	-57,8 %	+15%	KFR-30GW/H1-100 Heating	
230 V, 50 Hz	1200	977	-18,6 %	+15%	KF-9GW/BpC3-100 Cooling	
230 V, 50 Hz	1600	877	-45,2 %	+15%	KF-12GW/BpC3-100 Cooling	
230 V, 50 Hz	2600	1063	-59,1 %	+15%	KF-18GW/BpC3-100 Cooling	
230 V, 50 Hz	3000	1294	-56,9 %	+15%	KF-24GW/BpC3-100 Cooling	
230 V, 50 Hz	4350	1173	-73,0 %	+15%	KF-30GW/BpC3-100 Cooling	
230 V, 50 Hz	1200	1303	8,6 %	+15%	KFR-9GW/BpH3-100 Cooling	
230 V, 50 Hz	1250	970	-22,4 %	+15%	KFR-9GW/BpH3-100 Heating	
230 V, 50 Hz	1600	1573	-1,7 %	+15%	KFR-12GW/BpH3-100 Cooling	
230 V, 50 Hz	1700	993	-41,6 %	+15%	KFR-12GW/BpH3-100 Heating	
230 V, 50 Hz	2600	979	-62,3 %	+15%	KFR-18GW/BpH3-100 Cooling	
230 V, 50 Hz	2700	1094	-59,5 %	+15%	KFR-18GW/BpH3-100 Heating	
230 V, 50 Hz	3000	1274	-57,5 %	+15%	KFR-24GW/BpH3-100 Cooling	
230 V, 50 Hz	3200	2088	-34,8 %	+15%	KFR-24GW/BpH3-100 Heating	
230 V, 50 Hz	4350	1248	-71,3 %	+15%	KFR-30GW/BpH3-100 Cooling	
230 V, 50 Hz	4500	2156	-52,1 %	+15%	KFR-30GW/BpH3-100 Heating	
Supplementary information: the most unfavourable results were recorded.						

10.2	TABLE: Current deviation					P
Current deviation of/at:	I rated (A)	I measured (A)	ΔI	Required ΔI	Remark	
230 V, 50 Hz	8,0	5,0	-37,5 %	+15%	KF-9GW/C1-100 Cooling	

230 V, 50 Hz	8,3	7,7	-7.2 %	+15%	KF-12GW/C1-100 Cooling
230 V, 50 Hz	12,4	6,9	-44.4 %	+15%	KF-18GW/C1-100 Cooling
230 V, 50 Hz	14,0	11,6	-17.1 %	+15%	KF-24GW/C1-100 Cooling
230 V, 50 Hz	22,4	9,8	-56.3 %	+15%	KF-30GW/C1-100 Cooling
230 V, 50 Hz	8,0	5,6	-30.0 %	+15%	KFR-9GW/H1-100 Cooling
230 V, 50 Hz	8,2	5,8	-29.3 %	+15%	KFR-9GW/H1-100 Heating
230 V, 50 Hz	8,3	7,2	-13.3 %	+15%	KFR-12GW/H1-100 Cooling
230 V, 50 Hz	10,0	7,6	-24.0 %	+15%	KFR-12GW/H1-100 Heating
230 V, 50 Hz	12,4	7,7	-37.9 %	+15%	KFR-18GW/H1-100 Cooling
230 V, 50 Hz	12,8	6,8	-46.9 %	+15%	KFR-18GW/H1-100 Heating
230 V, 50 Hz	14,0	12,3	-12.1 %	+15%	KFR-24GW/H1-100 Cooling
230 V, 50 Hz	15,0	9,9	-34.0 %	+15%	KFR-24GW/H1-100 Heating
230 V, 50 Hz	22,7	11,9	-47.6 %	+15%	KFR-30GW/H1-100 Cooling
230 V, 50 Hz	23,6	9,8	-58.5 %	+15%	KFR-30GW/H1-100 Heating
230 V, 50 Hz	8,0	4,9	-38.8 %	+15%	KF-9GW/BpC3-100 Cooling
230 V, 50 Hz	8,3	4,0	-51.8 %	+15%	KF-12GW/BpC3-100 Cooling
230 V, 50 Hz	12,5	4,8	-61.6 %	+15%	KF-18GW/BpC3-100 Cooling
230 V, 50 Hz	14,0	5,8	-58.6 %	+15%	KF-24GW/BpC3-100 Cooling
230 V, 50 Hz	20,2	5,2	-74.3 %	+15%	KF-30GW/BpC3-100 Cooling
230 V, 50 Hz	8,0	5,7	-28.8 %	+15%	KFR-9GW/BpH3-100 Cooling
230 V, 50 Hz	8,2	4,3	-47.6 %	+15%	KFR-9GW/BpH3-100 Heating
230 V, 50 Hz	8,3	6,9	-16.9 %	+15%	KFR-12GW/BpH3-100 Cooling
230 V, 50 Hz	10,0	4,4	-56.0 %	+15%	KFR-12GW/BpH3-100 Heating
230 V, 50 Hz	12,4	4,5	-63.7 %	+15%	KFR-18GW/BpH3-100 Cooling
230 V, 50 Hz	12,8	4,9	-61.7 %	+15%	KFR-18GW/BpH3-100 Heating
230 V, 50 Hz	14,0	5,6	-60.0 %	+15%	KFR-24GW/BpH3-100 Cooling
230 V, 50 Hz	15,0	9,2	-38.7 %	+15%	KFR-24GW/BpH3-100 Heating
230 V, 50 Hz	20,2	5,6	-72.3 %	+15%	KFR-30GW/BpH3-100 Cooling
230 V, 50 Hz	20,5	9,5	-53.7 %	+15%	KFR-30GW/BpH3-100 Heating

Supplementary information: the most unfavourable results were recorded.

11.8-1	TABLE: Heating test (KFR-9GW/H1-100, cooling mode)		P
	Test voltage (V)	206,8 V and 254,4 V	—
	Ambient (°C)	Indoor unit: DB: 32 °C/WB: 23 °C Outdoor unit: DB: 52 °C/WB: 31 °C	—
Thermocouple locations		Max. temperature measured, T (°C)	Max. temperature limit, T (°C)

Indoor unit:					
Plastic enclosure/External enclosure			33,8		85/For clause 30.1
Transformer winding			38,5		110(Class 130(B))
Relay			43,0		T85
PCB			38,2		145
PCB connector			41,5		For clause 30.1
Supply cord			35,3		75
X2 capacitor			44,6		T85
Varistor			44,8		T85
Terminal block			37,0		For clause 30.1
Indoor unit fan motor			38,6		110 (Class 130(B))
Capacitor for indoor fan motor			36,1		T70
Internal wire			34,6		105
Interconnection cord			35,0		75
Test wall			34,2		90
Outdoor unit:					
External metal enclosure / handle			54,8		85
Terminal block			54,1		For clause 30.1
Internal wire to compressor			59,0		75
Outdoor unit fan motor			74,2		110 (Class 130(B))
Compressor			94,8		For reference
Capacitor for outdoor fan motor			60,1		T70
Capacitor for compressor			54,3		T70
Test floor			55,0		90
Supplementary information: —					
11.8-1	TABLE: Heating test, resistance method				P
	Test voltage (V)		206,8 V and 254,4 V		—
	Ambient, t1 (°C)		25,0 °C		—
	Ambient, t2 (°C)		IU: 32 °C OU: 52 °C		—
Temperature rise of winding	R1 (Ω)	R2 (Ω)	T (°C)	Max. T (°C)	Insulation class
Indoor fan motor winding	437,5	469,70	44,1	120	Class 130(B)
Outdoor fan motor winding	204,4	247,33	79,5	120	Class 130(B)
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.					

11.8-2	TABLE: Heating test (KFR-9GW/H1-100, heating mode)	P
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Test voltage (V)		206,8 V and 254,4 V		—	
Ambient (°C).....		Indoor unit: DB:27 °C/WB: — °C Outdoor unit: DB:24 °C/WB: 18 °C		—	
Thermocouple locations		Max. temperature measured, T (°C)		Max. temperature limit, T (°C)	
Indoor unit:					
Plastic enclosure/External enclosure		28,6		85/For clause 30.1	
Transformer winding		36,5		110(Class 130(B))	
Relay		42,0		T85	
PCB		30,7		145	
PCB connector		31,0		For clause 30.1	
Supply cord		32,1		75	
X2 capacitor		41,5		T85	
Varistor		46,3		T85	
Terminal block		31,7		For clause 30.1	
Indoor unit fan motor		48,9		110 (Class 130(B))	
Capacitor for indoor fan motor		32,0		T70	
Internal wire		29,1		105	
Interconnection cord		30,0		75	
Test wall		30,5		90	
Outdoor unit					
External metal enclosure / handle		30,1		85	
Terminal block		32,9		For clause 30.1	
Internal wire to compressor		46,8		75	
Outdoor unit fan motor		50,0		110 (Class 130(B))	
4-ways valve		60,0		110(Class 130(B))	
Compressor		91,6		For reference	
Capacitor for outdoor fan motor		30,7		T70	
Capacitor for compressor		30,0		T70	
Test floor		32,0		90	
Supplementary information:					
11.8-2	TABLE: Heating test, resistance method				P
Test voltage (V)		206,8 V and 254,4 V		—	
Ambient, t1 (°C).....		25,0 °C		—	
Ambient, t2 (°C).....		IU: 27 °C OU: 24 °C		—	
Temperature rise of winding	R1 (Ω)	R2 (Ω)	T (°C)	Max. T (°C)	Insulation class

Indoor fan motor winding	437,5	486,56	54,1	120	Class 130(B)
Outdoor fan motor winding	204,4	228,50	55,6	120	Class 130(B)
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.					

11.8-3	TABLE: Heating test (KFR-12GW/H1-100, cooling mode)			P
	Test voltage (V)	206,8 V and 254,4 V		—
	Ambient (°C)	Indoor unit: DB: 32 °C/WB: 23 °C Outdoor unit: DB: 52 °C/WB: 31 °C		—
Thermocouple locations		Max. temperature measured, T (°C)	Max. temperature limit, T (°C)	
Indoor unit:				
Plastic enclosure/External enclosure		32,6	85/For clause 30.1	
Transformer winding		41,0	110(Class 130(B))	
Relay		41,1	T85	
PCB		35,8	145	
PCB connector		44,3	For clause 30.1	
Supply cord		41,4	75	
X2 capacitor		41,3	T85	
Varistor		36,5	T85	
Terminal block		37,3	For clause 30.1	
Indoor unit fan motor		70,3	110 (Class 130(B))	
Capacitor for indoor fan motor		36,1	T70	
Internal wire		32,3	105	
Interconnection cord		32,5	75	
Test wall		32,3	90	
Outdoor unit:				
External metal enclosure / handle		53,1	85	
Terminal block		54,5	For clause 30.1	
Internal wire to compressor		54,3	75	
Outdoor unit fan motor		63,1	110 (Class 130(B))	
Compressor		96,2	For reference	
Capacitor for outdoor fan motor		51,1	T70	
Capacitor for compressor		55,2	T70	
Test floor		54,2	90	
Supplementary information: —				
11.8-3	TABLE: Heating test, resistance method			P

Test voltage (V)		206,8 V and 254,4 V		—	
Ambient, t1 (°C)		25,0 °C		—	
Ambient, t2 (°C)		IU: 32 °C OU: 52 °C		—	
Temperature rise of winding	R1 (Ω)	R2 (Ω)	T (°C)	Max. T (°C)	Insulation class
Indoor fan motor winding	416,4	497,59	75,6	120	Class 130(B)
Outdoor fan motor winding	256,7	299,53	68,3	120	Class 130(B)
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.					

11.8-4	TABLE: Heating test (KFR-12GW/H1-100, heating mode)			P
Test voltage (V)		206,8 V and 254,4 V		—
Ambient (°C)		Indoor unit: DB:27 °C/WB: — °C Outdoor unit: DB:24 °C/WB: 18 °C		—
Thermocouple locations		Max. temperature measured, T (°C)	Max. temperature limit, T (°C)	
Indoor unit:				
Plastic enclosure/External enclosure		27,8	85/For clause 30.1	
Transformer winding		39,4	110(Class 130(B))	
Relay		44,3	T85	
PCB		34,5	145	
PCB connector		29,3	For clause 30.1	
Supply cord		27,4	75	
X2 capacitor		33,2	T85	
Varistor		35,3	T85	
Terminal block		28,9	For clause 30.1	
Indoor unit fan motor		31,5	110 (Class 130(B))	
Capacitor for indoor fan motor		27,8	T70	
Internal wire		27,3	105	
Interconnection cord		28,1	75	
Test wall		29,4	90	
Outdoor unit				
External metal enclosure / handle		24,5	85	
Terminal block		25,1	For clause 30.1	
Internal wire to compressor		26,6	75	
Outdoor unit fan motor		29,4	110 (Class 130(B))	
4-ways valve		33,7	110(Class 130(B))	

Compressor	75,3	For reference
Capacitor for outdoor fan motor	26,5	T70
Capacitor for compressor	25,8	T70
Test floor	24,7	90
Supplementary information:		
11.8-4	TABLE: Heating test, resistance method	
	Test voltage (V)	206,8 V and 254,4 V
	Ambient, t1 (°C).....	25,0 °C
	Ambient, t2 (°C).....	IU: 27 °C OU: 24 °C
Temperature rise of winding	R1 (Ω)	R2 (Ω)
	T (°C)	Max. T (°C)
	Insulation class	
Indoor fan motor winding	416,4	434,85
	36,5	120
Outdoor fan motor winding	256,7	266,99
	35,4	120
	Class 130(B)	
	Class 130(B)	
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.		

11.8-5	TABLE: Heating test (KFR-18GW/H1-100, cooling mode)	
	Test voltage (V)	206,8 V and 254,4 V
	Ambient (°C).....	Indoor unit: DB: 32 °C/WB: 23 °C Outdoor unit: DB: 52 °C/WB: 31 °C
Thermocouple locations	Max. temperature measured, T (°C)	Max. temperature limit, T (°C)
Indoor unit:		
Plastic enclosure/External enclosure	32,7	85/For clause 30.1
Transformer winding	47,3	110(Class 130(B))
Relay	49,7	T85
PCB	43,8	145
PCB connector	39,1	For clause 30.1
Supply cord	37,8	75
X2 capacitor	46,9	T85
Varistor	41,0	T85
Terminal block	36,3	For clause 30.1
Indoor unit fan motor	49,7	110 (Class 130(B))
Capacitor for indoor fan motor	32,1	T70
Internal wire	37,1	105
Interconnection cord	32,4	75
Test wall	32,2	90

Outdoor unit:					
External metal enclosure / handle		56,2		85	
Terminal block		53,0		For clause 30.1	
Internal wire to compressor		56,6		75	
Outdoor unit fan motor		79,6		110 (Class 130(B))	
Compressor		108,0		For reference	
Capacitor for outdoor fan motor		58,3		T70	
Capacitor for compressor		53,5		T70	
Test floor		52,1		90	
Supplementary information: —					
11.8-5	TABLE: Heating test, resistance method				P
	Test voltage (V)	206,8 V and 254,4 V		—	
	Ambient, t1 (°C)	25,0 °C		—	
	Ambient, t2 (°C)	IU: 32 °C OU: 52 °C		—	
Temperature rise of winding	R1 (Ω)	R2 (Ω)	T (°C)	Max. T (°C)	Insulation class
Indoor fan motor winding	427,7	475,99	54,3	120	Class 130(B)
Outdoor fan motor winding	240,5	295,83	84,7	120	Class 130(B)
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.					

11.8-6	TABLE: Heating test (KFR-18GW/H1-100, heating mode)				P
	Test voltage (V)	206,8 V and 254,4 V		—	
	Ambient (°C)	Indoor unit: DB:27 °C/WB: — °C Outdoor unit: DB:24 °C/WB: 18 °C		—	
Thermocouple locations	Max. temperature measured, T (°C)		Max. temperature limit, T (°C)		
Indoor unit:					
Plastic enclosure/External enclosure		28,7		85/For clause 30.1	
Transformer winding		34,4		110(Class 130(B))	
Relay		33,9		T85	
PCB		33,9		145	
PCB connector		30,7		For clause 30.1	
Supply cord		28,1		75	
X2 capacitor		33,9		T85	
Varistor		35,0		T85	
Terminal block		27,5		For clause 30.1	

Indoor unit fan motor	44,2	110 (Class 130(B))			
Capacitor for indoor fan motor	27,8	T70			
Internal wire	27,1	105			
Interconnection cord	27,7	75			
Test wall	27,4	90			
Outdoor unit					
External metal enclosure / handle	24,8	85			
Terminal block	33,7	For clause 30.1			
Internal wire to compressor	43,4	75			
Outdoor unit fan motor	47,2	110 (Class 130(B))			
4-ways valve	74,4	110(Class 130(B))			
Compressor	109,8	For reference			
Capacitor for outdoor fan motor	51,1	T70			
Capacitor for compressor	41,8	T70			
Test floor	24,1	90			
Supplementary information:					
11.8-6	TABLE: Heating test, resistance method		P		
	Test voltage (V)	206,8 V and 254,4 V	—		
	Ambient, t1 (°C).....	25,0 °C	—		
	Ambient, t2 (°C).....	IU: 27 °C OU: 24 °C	—		
Temperature rise of winding	R1 (Ω)	R2 (Ω)	T (°C)	Max. T (°C)	Insulation class
Indoor fan motor winding	427,7	467,75	49,3	120	Class 130(B)
Outdoor fan motor winding	240,5	268,12	54,8	120	Class 130(B)
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.					

11.8-7	TABLE: Heating test (KFR-24GW/H1-100, cooling mode)		P
	Test voltage (V)	206,8 V and 254,4 V	—
	Ambient (°C).....	Indoor unit: DB: 32 °C/WB: 23 °C Outdoor unit: DB: 52 °C/WB: 31 °C	—
Thermocouple locations	Max. temperature measured, T (°C)		Max. temperature limit, T (°C)
Indoor unit:			
Plastic enclosure/External enclosure	32,7	85/For clause 30.1	
Transformer winding	47,5	110(Class 130(B))	
Relay	43,7	T85	

PCB	38,4	145			
PCB connector	40,8	For clause 30.1			
Supply cord	33,5	75			
X2 capacitor	49,3	T85			
Varistor	49,0	T85			
Terminal block	39,6	For clause 30.1			
Indoor unit fan motor	71,6	110 (Class 130(B))			
Capacitor for indoor fan motor	32,6	T70			
Internal wire	32,7	105			
Interconnection cord	32,6	75			
Test wall	32,6	90			
Outdoor unit:					
External metal enclosure / handle	52,3	85			
Terminal block	54,3	For clause 30.1			
Internal wire to compressor	57,5	75			
Outdoor unit fan motor	65,3	110 (Class 130(B))			
Compressor	84,5	For reference			
Capacitor for outdoor fan motor	54,1	T70			
Capacitor for compressor	53,6	T70			
Test floor	55,1	90			
Supplementary information: —					
11.8-7	TABLE: Heating test, resistance method		P		
	Test voltage (V)	206,8 V and 254,4 V	—		
	Ambient, t1 (°C)	25,0 °C	—		
	Ambient, t2 (°C)	IU: 32 °C OU: 52 °C	—		
Temperature rise of winding	R1 (Ω)	R2 (Ω)	T (°C)	Max. T (°C)	Insulation class
Indoor fan motor winding	214,7	256,98	76,1	120	Class 130(B)
Outdoor fan motor winding	130,7	153,97	71,2	120	Class 130(B)
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.					

11.8-8	TABLE: Heating test (KFR-24GW/H1-100, heating mode)		P
	Test voltage (V)	206,8 V and 254,4 V	—
	Ambient (°C)	Indoor unit: DB:27 °C/WB: — °C Outdoor unit: DB:24 °C/WB: 18 °C	—

Thermocouple locations	Max. temperature measured, T (°C)	Max. temperature limit, T (°C)			
Indoor unit:					
Plastic enclosure/External enclosure	27,5	85/For clause 30.1			
Transformer winding	43,6	110(Class 130(B))			
Relay	47,3	T85			
PCB	34,1	145			
PCB connector	38,5	For clause 30.1			
Supply cord	35,8	75			
X2 capacitor	46,2	T85			
Varistor	45,8	T85			
Terminal block	36,1	For clause 30.1			
Indoor unit fan motor	70,9	110 (Class 130(B))			
Capacitor for indoor fan motor	27,5	T70			
Internal wire	38,8	105			
Interconnection cord	27,2	75			
Test wall	27,5	90			
Outdoor unit					
External metal enclosure / handle	24,5	85			
Terminal block	26,8	For clause 30.1			
Internal wire to compressor	25,3	75			
Outdoor unit fan motor	24,7	110 (Class 130(B))			
4-ways valve	53,5	110(Class 130(B))			
Compressor	84,9	For reference			
Capacitor for outdoor fan motor	24,9	T70			
Capacitor for compressor	27,2	T70			
Test floor	25,3	90			
Supplementary information:					
11.8-8	TABLE: Heating test, resistance method		P		
	Test voltage (V)	206,8 V and 254,4 V	—		
	Ambient, t1 (°C)	25,0 °C	—		
	Ambient, t2 (°C)	IU: 27 °C OU: 24 °C	—		
Temperature rise of winding	R1 (Ω)	R2 (Ω)	T (°C)	Max. T (°C)	Insulation class
Indoor fan motor winding	214,7	257,31	76,5	120	Class 130(B)
Outdoor fan motor winding	130,7	133,32	30,2	120	Class 130(B)
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.					

11.8-9	TABLE: Heating test (KFR-30GW/H1-100, cooling mode)					P
	Test voltage (V)		206,8 V and 254,4 V		—	
	Ambient (°C)		Indoor unit: DB: 32 °C/WB: 23 °C Outdoor unit: DB: 52 °C/WB: 31 °C		—	
Thermocouple locations		Max. temperature measured, T (°C)		Max. temperature limit, T (°C)		
Indoor unit:						
Plastic enclosure/External enclosure		32,6		85/For clause 30.1		
Transformer winding		40,4		110(Class 130(B))		
Relay		45,3		T85		
PCB		33,2		145		
PCB connector		36,9		For clause 30.1		
Supply cord		33,1		75		
X2 capacitor		42,0		T85		
Varistor		41,2		T85		
Terminal block		34,4		For clause 30.1		
Indoor unit fan motor		66,5		110 (Class 130(B))		
Capacitor for indoor fan motor		32,1		T70		
Internal wire		36,9		105		
Interconnection cord		32,1		75		
Test wall		32,6		90		
Outdoor unit:						
External metal enclosure / handle		52,3		85		
Terminal block		54,3		For clause 30.1		
Internal wire to compressor		57,5		75		
Outdoor unit fan motor		66,7		110 (Class 130(B))		
Compressor		77,7		For reference		
Capacitor for outdoor fan motor		54,7		T70		
Capacitor for compressor		53,5		T70		
Test floor		52,1		90		
Supplementary information: —						
11.8-9	TABLE: Heating test, resistance method					P
	Test voltage (V)		206,8 V and 254,4 V		—	
	Ambient, t1 (°C)		25,0 °C		—	
	Ambient, t2 (°C)		IU: 32 °C OU: 52 °C		—	
Temperature rise of winding		R1 (Ω)	R2 (Ω)	T (°C)	Max. T (°C)	Insulation class

Indoor fan motor winding	214,7	253,17	71,5	120	Class 130(B)
Outdoor fan motor winding	133,3	157,85	72,8	120	Class 130(B)
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.					

11.8-10	TABLE: Heating test (KFR-30GW/H1-100, heating mode)			P
	Test voltage (V)	206,8 V and 254,4 V		—
	Ambient (°C)	Indoor unit: DB:27 °C/WB: — °C Outdoor unit: DB:24 °C/WB: 18 °C		—
Thermocouple locations		Max. temperature measured, T (°C)	Max. temperature limit, T (°C)	
Indoor unit:				
Plastic enclosure/External enclosure		30,8	85/For clause 30.1	
Transformer winding		41,7	110(Class 130(B))	
Relay		41,4	T85	
PCB		36,6	145	
PCB connector		38,8	For clause 30.1	
Supply cord		33,1	75	
X2 capacitor		47,4	T85	
Varistor		41,5	T85	
Terminal block		38,3	For clause 30.1	
Indoor unit fan motor		68,0	110 (Class 130(B))	
Capacitor for indoor fan motor		30,6	T70	
Internal wire		39,3	105	
Interconnection cord		30,9	75	
Test wall		32,2	90	
Outdoor unit				
External metal enclosure / handle		54,9	85	
Terminal block		55,8	For clause 30.1	
Internal wire to compressor		57,9	75	
Outdoor unit fan motor		74,9	110 (Class 130(B))	
4-ways valve		59,0	110(Class 130(B))	
Compressor		95,9	For reference	
Capacitor for outdoor fan motor		54,6	T70	
Capacitor for compressor		58,3	T70	
Test floor		58,1	90	
Supplementary information:				

11.8-10	TABLE: Heating test, resistance method					P
	Test voltage (V)	206,8 V and 254,4 V			—	
	Ambient, t1 (°C)	25,0 °C			—	
	Ambient, t2 (°C)	IU: 27 °C OU: 24 °C			—	
Temperature rise of winding	R1 (Ω)	R2 (Ω)	T (°C)	Max. T (°C)	Insulation class	
Indoor fan motor winding	214,7	254,66	73,3	120	Class 130(B)	
Outdoor fan motor winding	133,3	162,01	80,9	120	Class 130(B)	
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.						

11.8-11	TABLE: Heating test (KFR-9GW/BpH3-100, cooling mode)			P
	Test voltage (V)	206,8 V and 254,4 V		—
	Ambient (°C)	Indoor unit: DB: 32 °C/WB: 23 °C Outdoor unit: DB: 52 °C/WB: 31 °C		—
Thermocouple locations	Max. temperature measured, T (°C)		Max. temperature limit, T (°C)	
Indoor unit:				
Plastic enclosure/External enclosure	35,4		85/For clause 30.1	
Transformer winding	41,2		110(Class 130(B))	
Relay	38,4		T85	
PCB	40,2		145	
PCB connector	43,4		For clause 30.1	
Supply cord	32,7		75	
X2 capacitor	39,1		T85	
Varistor	35,0		T85	
Terminal block	32,1		For clause 30.1	
Indoor unit fan motor	62,5		110 (Class 130(B))	
Capacitor for indoor fan motor	35,7		T70	
Internal wire	32,9		105	
Interconnection cord	34,0		75	
Test wall	34,2		90	
Outdoor unit:				
External metal enclosure / handle	52,8		85	
Terminal block	53,4		For clause 30.1	
Internal wire to compressor	56,1		75	
Relay	60,0		T85	

PCB	57,2	145			
PCB connector	55,9	For clause 30.1			
X2 capacitor	54,0	T85			
Outdoor unit fan motor	72,1	110 (Class 130(B))			
Compressor	73,2	For reference			
Capacitor for outdoor fan motor	59,6	T70			
Test floor	52,5	90			
Supplementary information: —					
11.8-11	TABLE: Heating test, resistance method		P		
	Test voltage (V)	206,8 V and 254,4 V	—		
	Ambient, t1 (°C).....	25,0 °C	—		
	Ambient, t2 (°C).....	IU: 32 °C OU: 52 °C	—		
Temperature rise of winding	R1 (Ω)	R2 (Ω)	T (°C)	Max. T (°C)	Insulation class
Indoor fan motor winding	422,8	491,88	67,4	120	Class 130(B)
Outdoor fan motor winding	207,6	249,28	77,1	120	Class 130(B)
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.					

11.8-12	TABLE: Heating test (KFR-9GW/BpH3-100, heating mode)		P
	Test voltage (V)	206,8 V and 254,4 V	—
	Ambient (°C).....	Indoor unit: DB:27 °C/WB: — °C Outdoor unit: DB:24 °C/WB: 18 °C	—
Thermocouple locations	Max. temperature measured, T (°C)		Max. temperature limit, T (°C)
Indoor unit:			
Plastic enclosure/External enclosure	29,0	85/For clause 30.1	
Transformer winding	37,3	110(Class 130(B))	
Relay	38,6	T85	
PCB	34,2	145	
PCB connector	31,5	For clause 30.1	
Supply cord	30,0	75	
X2 capacitor	38,1	T85	
Varistor	32,4	T85	
Terminal block	30,0	For clause 30.1	
Indoor unit fan motor	54,8	110 (Class 130(B))	
Capacitor for indoor fan motor	40,1	T70	

Internal wire	30,2	105
Interconnection cord	28,6	75
Test wall	28,0	90
Outdoor unit		
External metal enclosure / handle	26,1	85
Terminal block	24,9	For clause 30.1
Internal wire to compressor	26,5	75
Relay	31,0	T85
PCB	31,7	145
PCB connector	25,8	For clause 30.1
X2 capacitor	26,3	T85
Outdoor unit fan motor	35,7	110 (Class 130(B))
4-ways valve	28,2	110(Class 130(B))
Compressor	60,1	For reference
Capacitor for outdoor fan motor	30,6	T70
Test floor	25,2	90

Supplementary information:

11.8-12	TABLE: Heating test, resistance method				P
	Test voltage (V)	206,8 V and 254,4 V			—
	Ambient, t1 (°C)	25,0 °C			—
	Ambient, t2 (°C)	IU: 27 °C OU: 24 °C			—
Temperature rise of winding	R1 (Ω)	R2 (Ω)	T (°C)	Max. T (°C)	Insulation class
Indoor fan motor winding	422,8	480,64	60,5	120	Class 130(B)
Outdoor fan motor winding	207,6	220,48	41,1	120	Class 130(B)

Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.

11.8-13	TABLE: Heating test (KFR-12GW/BpH3-100, cooling mode)				P
	Test voltage (V)	206,8 V and 254,4 V			—
	Ambient (°C)	Indoor unit: DB: 32 °C/WB: 23 °C Outdoor unit: DB: 52 °C/WB: 31 °C			—
Thermocouple locations	Max. temperature measured, T (°C)		Max. temperature limit, T (°C)		
Indoor unit:					
Plastic enclosure/External enclosure	34,1		85/For clause 30.1		
Transformer winding	41,3		110(Class 130(B))		

Relay		42,5		T85	
PCB		40,0		145	
PCB connector		37,0		For clause 30.1	
Supply cord		33,8		75	
X2 capacitor		46,9		T85	
Varistor		32,6		T85	
Terminal block		33,4		For clause 30.1	
Indoor unit fan motor		59,6		110 (Class 130(B))	
Capacitor for indoor fan motor		32,2		T70	
Internal wire		33,7		105	
Interconnection cord		32,4		75	
Test wall		32,1		90	
Outdoor unit:					
External metal enclosure / handle		53,9		85	
Terminal block		52,9		For clause 30.1	
Internal wire to compressor		56,1		75	
Relay		56,5		T85	
PCB		59,9		145	
PCB connector		53,0		For clause 30.1	
X2 capacitor		55,9		T85	
Outdoor unit fan motor		78,9		110 (Class 130(B))	
Compressor		78,7		For reference	
Capacitor for outdoor fan motor		58,7		T70	
Test floor		54,1		90	
Supplementary information: —					
11.8-13	TABLE: Heating test, resistance method				P
	Test voltage (V)	206,8 V and 254,4 V		—	
	Ambient, t1 (°C)	25,0 °C		—	
	Ambient, t2 (°C)	IU: 32 °C OU: 52 °C		—	
Temperature rise of winding	R1 (Ω)	R2 (Ω)	T (°C)	Max. T (°C)	Insulation class
Indoor fan motor winding	412,7	476,31	65,0	120	Class 130(B)
Outdoor fan motor winding	266,9	327,89	84,3	120	Class 130(B)
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.					

11.8-14	TABLE: Heating test (KFR-12GW/BpH3-100, heating mode)	P
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	Test voltage (V)	206,8 V and 254,4 V	—
	Ambient (°C).....	Indoor unit: DB:27 °C/WB: — °C Outdoor unit: DB:24 °C/WB: 18 °C	—
Thermocouple locations		Max. temperature measured, T (°C)	Max. temperature limit, T (°C)
Indoor unit:			
Plastic enclosure/External enclosure		28,9	85/For clause 30.1
Transformer winding		38,8	110(Class 130(B))
Relay		38,5	T85
PCB		36,4	145
PCB connector		32,6	For clause 30.1
Supply cord		30,1	75
X2 capacitor		42,2	T85
Varistor		31,7	T85
Terminal block		31,9	For clause 30.1
Indoor unit fan motor		57,7	110 (Class 130(B))
Capacitor for indoor fan motor		30,5	T70
Internal wire		29,8	105
Interconnection cord		29,0	75
Test wall		28,1	90
Outdoor unit			
External metal enclosure / handle		25,9	85
Terminal block		25,8	For clause 30.1
Internal wire to compressor		26,9	75
Relay		31,8	T85
PCB		28,4	145
PCB connector		30,0	For clause 30.1
X2 capacitor		25,0	T85
Outdoor unit fan motor		35,3	110 (Class 130(B))
4-ways valve		28,3	110(Class 130(B))
Compressor		60,7	For reference
Capacitor for outdoor fan motor		26,6	T70
Test floor		24,8	90
Supplementary information:			
11.8-14	TABLE: Heating test, resistance method		P
	Test voltage (V)	206,8 V and 254,4 V	—
	Ambient, t1 (°C).....	25,0 °C	—

Ambient, t2 (°C)..... :			IU: 27 °C OU: 24 °C		—
Temperature rise of winding	R1 (Ω)	R2 (Ω)	T (°C)	Max. T (°C)	Insulation class
Indoor fan motor winding	412,7	473,29	63,1	120	Class 130(B)
Outdoor fan motor winding	266,9	283,87	41,5	120	Class 130(B)
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.					

11.8-15	TABLE: Heating test (KFR-18GW/BpH3-100, cooling mode)			P
Test voltage (V)		206,8 V and 254,4 V		—
Ambient (°C)..... :		Indoor unit: DB: 32 °C/WB: 23 °C Outdoor unit: DB: 52 °C/WB: 31 °C		—
Thermocouple locations		Max. temperature measured, T (°C)	Max. temperature limit, T (°C)	
Indoor unit:				
Plastic enclosure/External enclosure		32,2	85/For clause 30.1	
Transformer winding		42,7	110(Class 130(B))	
Relay		43,8	T85	
PCB		38,7	145	
PCB connector		38,2	For clause 30.1	
Supply cord		33,5	75	
X2 capacitor		42,5	T85	
Varistor		41,5	T85	
Terminal block		38,3	For clause 30.1	
Indoor unit fan motor		74,6	110 (Class 130(B))	
Capacitor for indoor fan motor		33,1	T70	
Internal wire		33,4	105	
Interconnection cord		41,8	75	
Test wall		32,6	90	
Outdoor unit:				
External metal enclosure / handle		54,6	85	
Terminal block		58,3	For clause 30.1	
Internal wire to compressor		59,3	75	
Relay		56,2	T85	
PCB		59,3	145	
PCB connector		54,4	For clause 30.1	
X2 capacitor		53,2	T85	

Outdoor unit fan motor	74,4	110 (Class 130(B))
Compressor	78,2	For reference
Capacitor for outdoor fan motor	59,6	T70
Test floor	53,8	90
Supplementary information: —		
11.8-15	TABLE: Heating test, resistance method	
	Test voltage (V)	206,8 V and 254,4 V
	Ambient, t1 (°C).....	25,0 °C
	Ambient, t2 (°C).....	IU: 32 °C OU: 52 °C
Temperature rise of winding	R1 (Ω)	R2 (Ω)
	T (°C)	Max. T (°C)
	Insulation class	
Indoor fan motor winding	431,0	522,68
Outdoor fan motor winding	264,5	320,66
	80,2	120
	80,1	120
	Class 130(B)	
	Class 130(B)	
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.		

11.8-16	TABLE: Heating test (KFR-18GW/BpH3-100, heating mode)	
	Test voltage (V)	206,8 V and 254,4 V
	Ambient (°C).....	Indoor unit: DB:27 °C/WB: — °C Outdoor unit: DB:24 °C/WB: 18 °C
Thermocouple locations	Max. temperature measured, T (°C)	Max. temperature limit, T (°C)
Indoor unit:		
Plastic enclosure/External enclosure	28,3	85/For clause 30.1
Transformer winding	40,4	110(Class 130(B))
Relay	45,1	T85
PCB	33,2	145
PCB connector	36,9	For clause 30.1
Supply cord	37,2	75
X2 capacitor	42,0	T85
Varistor	41,3	T85
Terminal block	34,4	For clause 30.1
Indoor unit fan motor	68,7	110 (Class 130(B))
Capacitor for indoor fan motor	27,9	T70
Internal wire	36,9	105
Interconnection cord	28,0	75
Test wall	28,1	90

Outdoor unit					
External metal enclosure / handle		30,6		85	
Terminal block		35,1		For clause 30.1	
Internal wire to compressor		32,7		75	
Relay		32,8		T85	
PCB		29,4		145	
PCB connector		26,4		For clause 30.1	
X2 capacitor		25,1		T85	
Outdoor unit fan motor		45,5		110 (Class 130(B))	
4-ways valve		33,5		110(Class 130(B))	
Compressor		56,8		For reference	
Capacitor for outdoor fan motor		32,0		T70	
Test floor		25,1		90	
Supplementary information:					
11.8-16	TABLE: Heating test, resistance method				P
	Test voltage (V)	206,8 V and 254,4 V			—
	Ambient, t1 (°C).....	25,0 °C			—
	Ambient, t2 (°C).....	IU: 27 °C OU: 24 °C			—
Temperature rise of winding	R1 (Ω)	R2 (Ω)	T (°C)	Max. T (°C)	Insulation class
Indoor fan motor winding	431,0	512,88	74,3	120	Class 130(B)
Outdoor fan motor winding	264,5	291,61	51,6	120	Class 130(B)
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.					

11.8-17	TABLE: Heating test (KFR-24GW/BpH3-100, cooling mode)				P
	Test voltage (V)	206,8 V and 254,4 V			—
	Ambient (°C).....	Indoor unit: DB: 32 °C/WB: 23 °C Outdoor unit: DB: 52 °C/WB: 31 °C			—
Thermocouple locations	Max. temperature measured, T (°C)		Max. temperature limit, T (°C)		
Indoor unit:					
Plastic enclosure/External enclosure		33,6		85/For clause 30.1	
Transformer winding		38,0		110(Class 130(B))	
Relay		36,2		T85	
PCB		34,1		145	
PCB connector		33,3		For clause 30.1	

Supply cord	32,9	75			
X2 capacitor	41,0	T85			
Varistor	38,1	T85			
Terminal block	35,2	For clause 30.1			
Indoor unit fan motor	68,7	110 (Class 130(B))			
Capacitor for indoor fan motor	34,0	T70			
Internal wire	36,2	105			
Interconnection cord	34,1	75			
Test wall	32,7	90			
Outdoor unit:					
External metal enclosure / handle	54,1	85			
Terminal block	52,5	For clause 30.1			
Internal wire to compressor	59,0	75			
Relay	64,7	T85			
PCB	62,4	145			
PCB connector	58,0	For clause 30.1			
X2 capacitor	71,4	T85			
Outdoor unit fan motor	86,1	110 (Class 130(B))			
Compressor	72,1	For reference			
Capacitor for outdoor fan motor	58,0	T70			
Test floor	55,0	90			
Supplementary information: —					
11.8-17	TABLE: Heating test, resistance method		P		
	Test voltage (V)	206,8 V and 254,4 V	—		
	Ambient, t1 (°C)	25,0 °C	—		
	Ambient, t2 (°C)	IU: 32 °C OU: 52 °C	—		
Temperature rise of winding	R1 (Ω)	R2 (Ω)	T (°C)	Max. T (°C)	Insulation class
Indoor fan motor winding	431,0	513,55	74,7	120	Class 130(B)
Outdoor fan motor winding	155,6	195,11	90,9	120	Class 130(B)
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.					

11.8-18	TABLE: Heating test (KFR-24GW/BpH3-100, heating mode)		P
	Test voltage (V)	206,8 V and 254,4 V	—

	Ambient (°C)..... :	Indoor unit: DB:27 °C/WB: — °C Outdoor unit: DB:24 °C/WB: 18 °C	—
Thermocouple locations		Max. temperature measured, T (°C)	Max. temperature limit, T (°C)
Indoor unit:			
Plastic enclosure/External enclosure		29,0	85/For clause 30.1
Transformer winding		36,2	110(Class 130(B))
Relay		44,9	T85
PCB		30,7	145
PCB connector		30,1	For clause 30.1
Supply cord		30,4	75
X2 capacitor		39,6	T85
Varistor		35,0	T85
Terminal block		32,7	For clause 30.1
Indoor unit fan motor		63,9	110 (Class 130(B))
Capacitor for indoor fan motor		29,1	T70
Internal wire		32,9	105
Interconnection cord		33,9	75
Test wall		34,6	90
Outdoor unit			
External metal enclosure / handle		27,0	85
Terminal block		25,1	For clause 30.1
Internal wire to compressor		30,5	75
Relay		40,7	T85
PCB		35,1	145
PCB connector		29,6	For clause 30.1
X2 capacitor		38,4	T85
Outdoor unit fan motor		44,0	110 (Class 130(B))
4-ways valve		40,9	110(Class 130(B))
Compressor		51,2	For reference
Capacitor for outdoor fan motor		34,2	T70
Test floor		35,0	90
Supplementary information:			
11.8-18	TABLE: Heating test, resistance method		P
	Test voltage (V)..... :	206,8 V and 254,4 V	—
	Ambient, t1 (°C)..... :	25,0 °C	—
	Ambient, t2 (°C)..... :	IU: 27 °C OU: 24 °C	—

Temperature rise of winding	R1 (Ω)	R2 (Ω)	T ($^{\circ}\text{C}$)	Max. T ($^{\circ}\text{C}$)	Insulation class
Indoor fan motor winding	431,0	504,25	69,1	120	Class 130(B)
Outdoor fan motor winding	155,6	170,83	50,4	120	Class 130(B)

Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.

11.8-19	TABLE: Heating test (KFR-30GW/BpH3-100, cooling mode)		P
	Test voltage (V)	206,8 V and 254,4 V	—
	Ambient ($^{\circ}\text{C}$)	Indoor unit: DB: 32 $^{\circ}\text{C}$ /WB: 23 $^{\circ}\text{C}$ Outdoor unit: DB: 52 $^{\circ}\text{C}$ /WB: 31 $^{\circ}\text{C}$	—
Thermocouple locations		Max. temperature measured, T ($^{\circ}\text{C}$)	Max. temperature limit, T ($^{\circ}\text{C}$)
Indoor unit:			
Plastic enclosure/External enclosure		34,0	85/For clause 30.1
Transformer winding		38,0	110(Class 130(B))
Relay		36,3	T85
PCB		34,1	145
PCB connector		33,1	For clause 30.1
Supply cord		33,8	75
X2 capacitor		39,5	T85
Varistor		37,3	T85
Terminal block		34,4	For clause 30.1
Indoor unit fan motor		64,5	110 (Class 130(B))
Capacitor for indoor fan motor		33,0	T70
Internal wire		36,0	105
Interconnection cord		32,2	75
Test wall		32,7	90
Outdoor unit:			
External metal enclosure / handle		55,5	85
Terminal block		53,1	For clause 30.1
Internal wire to compressor		56,4	75
Relay		60,9	T85
PCB		57,9	145
PCB connector		54,6	For clause 30.1
X2 capacitor		57,6	T85
Outdoor unit fan motor		69,0	110 (Class 130(B))
Compressor		66,6	For reference

Capacitor for outdoor fan motor	48,0	T70			
Test floor	56,2	90			
Supplementary information: —					
11.8-19	TABLE: Heating test, resistance method		P		
	Test voltage (V)	206,8 V and 254,4 V	—		
	Ambient, t1 (°C)	25,0 °C	—		
	Ambient, t2 (°C)	IU: 32 °C OU: 52 °C	—		
Temperature rise of winding	R1 (Ω)	R2 (Ω)	T (°C)	Max. T (°C)	Insulation class
Indoor fan motor winding	431,0	506,07	70,2	120	Class 130(B)
Outdoor fan motor winding	243,6	289,88	74,3	120	Class 130(B)
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.					

11.8-20	TABLE: Heating test (KFR-30GW/BpH3-100, heating mode)		P
	Test voltage (V)	206,8 V and 254,4 V	—
	Ambient (°C)	Indoor unit: DB:27 °C/WB: — °C Outdoor unit: DB:24 °C/WB: 18 °C	—
Thermocouple locations	Max. temperature measured, T (°C)	Max. temperature limit, T (°C)	
Indoor unit:			
Plastic enclosure/External enclosure	28,4	85/For clause 30.1	
Transformer winding	36,5	110(Class 130(B))	
Relay	46,1	T85	
PCB	30,7	145	
PCB connector	30,2	For clause 30.1	
Supply cord	31,0	75	
X2 capacitor	41,0	T85	
Varistor	33,9	T85	
Terminal block	31,4	For clause 30.1	
Indoor unit fan motor	65,0	110 (Class 130(B))	
Capacitor for indoor fan motor	28,5	T70	
Internal wire	33,1	105	
Interconnection cord	28,4	75	
Test wall	30,0	90	
Outdoor unit			
External metal enclosure / handle	25,1	85	

Terminal block	26,3	For clause 30.1			
Internal wire to compressor	30,5	75			
Relay	35,1	T85			
PCB	32,0	145			
PCB connector	30,0	For clause 30.1			
X2 capacitor	32,1	T85			
Outdoor unit fan motor	31,4	110 (Class 130(B))			
4-ways valve	40,9	110(Class 130(B))			
Compressor	58,0	For reference			
Capacitor for outdoor fan motor	35,8	T70			
Test floor	36,5	90			
Supplementary information:					
11.8-20	TABLE: Heating test, resistance method		P		
	Test voltage (V)	206,8 V and 254,4 V	—		
	Ambient, t1 (°C).....	25,0 °C	—		
	Ambient, t2 (°C).....	IU: 27 °C OU: 24 °C	—		
Temperature rise of winding	R1 (Ω)	R2 (Ω)	T (°C)	Max. T (°C)	Insulation class
Indoor fan motor winding	431,0	506,57	70,5	120	Class 130(B)
Outdoor fan motor winding	243,6	254,21	36,3	120	Class 130(B)
Supplementary information: The tests were performed at 0,94 times and 1,06 times rated voltage assembled with alternative components and constructions, and the most unfavourable results were recorded.					

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)	254,4 V	—
Leakage current between		I (mA)	Max. allowed I (mA)
L/N and earthed metal		0,43	2 mA/kW
L/N and plastic enclosure		0,05	0,35 peak
Supplementary information: the most unfavourable results were recorded.			

13.3	TABLE: Dielectric strength		P
Test voltage applied between:	Test potential applied (V)	Breakdown / flashover (Yes/No)	
Live parts and earthed metal screws	1000	No	
Internal wires and accessible part	1750	No	
Live parts and accessible plastic enclosure	3000	No	
Supplementary information: the most unfavourable results were recorded.			

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

16.2	TABLE: Leakage current			P
	Single phase appliances: 1,06 x rated voltage (V)	254,4 V		—
	Three phase appliances 1,06 x rated voltage divided by $\sqrt{3}$ (V)	—		—
Leakage current between		I (mA)	Max. allowed I (mA)	
Live parts and earthed metal parts		0,51	2 mA/kW	
Live parts and accessible non-metallic parts		0,06	0,35 (peak)	
Supplementary information: the most unfavourable results were recorded.				

16.3	TABLE: Dielectric strength		P
Test voltage applied between:	Test potential applied (V)	Breakdown / flashover (Yes/No)	
Live parts and earthed metal screws	1250	No	
Internal wires and accessible part	1750	No	
Live parts and accessible plastic enclosure	3000	No	
Supplementary information: the most unfavourable results were recorded.			

17	TABLE: Overload protection		P
Thermocouple locations	Max. temperature rise measured, ΔT (K)	Max. temperature rise limit, ΔT (K)	
Winding of indoor transformer	68,3	175 (Class 130(B))	
Supplementary information: recorded the most unfavourable result.			

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

19	Abnormal operation conditions		P
Operational characteristics	YES/NO	Operational conditions	

Are there electronic circuits to control the appliance operation?		YES	Electronic circuits control the appliance operation when energized				
Are there "off" or "stand-by" position?		YES	Stand-by when energized and without further operation.				
The unintended operation of the appliance results in dangerous malfunction?		NO	—				
Sub-clause	Operating conditions description	Test results description	PEC description	EMP 19.11.4	Software type required	19.11.3 PEC	Final result
19.2	—	—	—	N/A	—	—	N/A
19.3	—	—	—	N/A	—	—	N/A
19.4	Short circuit / open circuit capacitor	The tested result compliance with the requirements of clause 19.13, no hazard.	—	N/A	—	—	P
19.5	—	—	—	N/A	—	—	N/A
19.6	—	—	—	N/A	—	—	N/A
19.7	The motors are supplied at their supplied voltage when the appliance is supplied at the upper limit of the rated voltage range	The tested result compliance with the requirements of clause 19.7&19.13, no hazard.	Current detected for DC fan motor	N/A	—	P	P
19.8	—	—	—	N/A	—	—	N/A
19.9	—	—	—	N/A	—	—	N/A
19.10	—	—	—	N/A	—	—	N/A
19.11.2	Evaluation of the fault condition for circuit	The tested result compliance with the requirements of clause 19.13, no hazard.	—	N/A	—	—	P
19.11.4.8	—	—	—	N/A	—	—	N/A
19.101	Operated under the conditions in Clause 11 but supplied at upper limit of the rated voltage range with	The tested result compliance with the requirements of clause 19.13, no hazard.	—	N/A	—	—	P

	ambient temperature of 23 ± 5 °C.						
19.103	Operated under the conditions in Clause 11 at the upper limit of the rated voltage range	The tested result compliance with the requirements of clause 19.13, no hazard.	—	N/A	—	—	P

19.4	Abnormal operation conditions					P
Failure description		Effect			Verdict	
Short-circuit compressor capacitor		The tested result compliance with the requirements of clause 19.13.			P	
Open-circuit compressor capacitor		The tested result compliance with the requirements of clause 19.13.			P	
Short-circuit indoor unit fan motor capacitor		The tested result compliance with the requirements of clause 19.13.			P	
Open-circuit indoor unit fan motor capacitor		The tested result compliance with the requirements of clause 19.13.			P	
Short-circuit outdoor unit fan motor capacitor		The tested result compliance with the requirements of clause 19.13.			P	
Open-circuit outdoor unit fan motor capacitor		The tested result compliance with the requirements of clause 19.13.			P	
Open-circuiting or short-circuiting of components		The tested result compliance with the requirements of clause 19.13.			P	
Supplementary information:						

19.7	Abnormal operation conditions – locked rotor test other than motor-compressors and stationary circulation pumps in compliance with IEC 60335-2-51					P
	Ambient, t1 (°C):		23,0 °C		—	
	Ambient, t2 (°C):		23,0 °C		—	
	Test voltage (V):		Step motor: 12 V Indoor Fan motor: 240 V Outdoor Fan motor: 220 V		—	
Temperature limit T of winding:		R ₁ (Ω)	R ₂ (Ω)	Measured T (°C)	limit T (°C)	Insulation class
Step motor winding		—	—	49,7	90 when steady	Class 120 (E)
Indoor fan motor winding (all models were tested)		—	—	109,5	165	Class 120 (E)
Outdoor fan motor winding (all models were tested)		—	—	133,2	165	Class 120 (E)

19.7	TABLE: electric strength measurements after 72 hours		P
Test voltage applied between:		Test voltage (V)	Breakdown Yes / No
Fan motor winding and enclosure		1250	No

19.7	TABLE: leakage current measurements after 72 hours		P
A voltage equal to twice the rated voltage (V):		440 V or 480 V	—
Leakage current I between:		I (mA)	Required I (mA)
Fan motor winding and enclosure		0,6	2

19.7	Abnormal operation conditions – Locked rotor test motor-compressor				N/A
	Motor-compressor	—			
	Start device	—			
	Protector	—			
	Start capacitor	—			
	Run capacitor	—			
	Cooling; (static); (fan-m ³ /h); (oil);	—			
	Thermal motor-protection system	—			
		Self-resetting			Manually reset
	Rated voltage	Vn max (V)			Vn min (V)
		After 72 h	After 288 h	After 360 h	After 363 h
	High-voltage test (see 16.3)	—	—	—	—
	Leakage current (mA) (see 16.2)	—	—	—	—
	Electric strength (see 13.3)	—	—	—	—
	Room temperature (°C) (20 ± 5°C)	—	—	—	—
	Number of cycles (≥ 2000 or 50)	—	—	—	—
	Housing temperature (°C) (≤ 150°C)	—	—	—	—
	supplementary information:-				

19.11.2	Abnormal Operation			P
Fault condition	Short circuit	Open circuit	Effect	Verdict
Supplementary information: refer to clause 19.11.2				

19.13	TABLE: Abnormal operation, temperature rises		P
Thermocouple locations	Max. temperature rise measured, Δ T (K)	Max. temperature rise limit, Δ T (K)	
Plastic enclosure	7,1	For cl. 30.1	

Supply cord	8,8	150
Test floor	6,9	150
Supplementary information: The tests were carried out and recorded the most unfavourable result.		

19.101-104	Abnormal operation conditions	P
Subclause	Effect	Verdict
19.101	The tested result compliance with the requirements of clause 19.13.	P
19.103	The tested result compliance with the requirements of clause 19.13.	P
Supplementary information: The tests were carried out and recorded the most unfavourable result.		

21.1	TABLE: Impact resistance	P	
Impacts per surface	Surface tested	Impact energy (Nm)	Comments
Three times	Enclosure	0,5 J	P

24.1-1	TABLE: Critical components information				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard ²⁾	Mark(s) of conformity ¹⁾
For the all inverter air conditioner					
PCB board	KINGBOARD (FOGANG) LAMINATES LIMITED	KB-5150	CEM-1 1.6mm FV-0	IEC 60695-11-0	UL:E123995 VDE: 40040433
Alt.	Kingboard Laminates Holdings Limited	KB-5150	CEM-1 1.6mm FV-0	IEC 60695-11-0	E123995 VDE 40040433
Alt.	Guangdong Shengyi Sci.Tech Co.,Ltd.	S1141	1.6mm V-0	IEC 60695-11-0	UL:E109769 VDE: 40010780
Alt.	JIANGMEN BENLIDA PRINTED CIRCUIT CO.,LTD	BLD-B,BLD- D	V-0, 130°C	UL 796,UL 94	UL:E203640
Alt.	ZHUHAI KINGSUN ELECTRONICS AND TECHNOLOGY CO LTD	KS-D,KS-D1 ,KS-D2	V-0, 130°C	UL 796,UL 94	UL:E465853
Alt.	ELEC & ELTEK MULTILAYER PCB LTD	E3330E	V-0, 130°C	UL 796,UL 94	UL:E54926
Alt.	Longnan Champion Asia Electronic Technology Co Ltd.	F-D	V-0, 130°C	UL 796,UL 94	UL:E254215
Alt.	SHEN ZHEN SUN & LYNN CIRCUITS CO LTD	SL-2,SL-D,S L-HD	V-0, 130°C	UL 796,UL 94	UL:E234156
Alt.	HUIZHOU GLORYSKY ELECTRONICS CO LTD	GS-D,GS-D 1,GS-D3	V-0, 130°C	UL 796,UL 94	UL:E257384

Alt.	SHENZHEN STARIVER CIRCUITS CO LTD	SR-01A	V-0, 130°C	UL 796,UL 94	UL:E258603
Alt.	GuangDong Kingshine Electronic Technology Co Ltd	D0,D1	V-0, 130°C	UL 796,UL 94	UL:E358874
Alt.	CHANGZHOU AOHONG ELECTRONICS CO LTD	AOH-2,AOH -4	V-0, 130°C	UL 796,UL 94	UL:E303981
Alt.	Sunshine Global Circuits Co Ltd	SS-1,SS-1C, SS-11	V-0, 130°C	UL 796,UL 94	UL:E229342
Alt.	CHANGZHOU JITIAN ELECTRONIC CO LTD	GT-10	V-0, 130°C	UL 796,UL 94	UL:E315394
Alt.	Guangdong Chengde Electronic Technology Co Ltd	D1	V-0, 130°C	UL 796,UL 94	UL:E322995
Alt.	SICHUAN HAIYING ELECTRONIC TECHNOLOGY CO LTD	HY-2,HY-6, HY-8,HY-3	V-0, 130°C	UL 796,UL 94	UL:E351718
Motor running capacitor for 09K/12K/18 K/24K/30K Indoor unit	Anhui Feida Electrical Technology Co., Ltd.	CBB61-P	1.5µF, 3µF, 450VAC 50/60Hz S3 T70	EN 60252-1	UL:E241095 VDE: 40036245 TUV: R 50132899
Alt.	Guangdong Fengming Electronic Tech.Co.,Ltd.	CBB61-P2	1.5µF, 3µF, 450VAC 50/60Hz S3 T70	EN 60252-1	TUV: R 50274996
Transformer	Hefei Saintlang Electronic Technology Co., Ltd	EE16-1.2mH SLTF16021	Class 130 (B) Output Triple Insulated Winding Wire	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	Hefei Saintlang Electronic Technology Co., Ltd	EE16-1.2mH SLTF16028	Class 130 (B) Output Triple Insulated Winding Wire	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	Junyao Electronics (Xuyi) Co., Ltd.	EE16-1.2mH 12V 0.8A	Class 130 (B) Output Triple Insulated Winding Wire	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	Huizhou Huichuan Xinchun Technology Co., Ltd.	HCJHE16021	Class 130 (B) Output Triple Insulated Winding Wire	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	Huizhou Huichuan Xinchun Technology Co., Ltd.	HCJHE16028	Class 130 (B) Output Triple Insulated Winding Wire	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	Guangzhou Shiyuan Electronic Technology Company Limited	SYEE19-T012018A	Class 130 (B) Output Triple Insulated Winding Wire	IEC 60335-1	Tested with appliance

Triple insulated winding wire for Transformer	Shenzhen Kaizhong Hedong New Materials Co., Ltd.	TIW-B	Reinforced insulation, 130° C TIW-B	IEC 62368-1 IEC 61558-2-16	VDE: 40038861
Alt.	Shanghai Lucky Trade Co., Ltd.	TIW-B	Reinforced insulation, 130° C TIW-B	IEC 62368-1 IEC 61558-2-16	VDE: 40023686
Varistor	Nanjing Jocol Electronics Technology Co.,LTD	TUR 14D621KP	620V	IEC/EN 61051-1 IEC/EN 61051-2	UL:E535724
Alt.	CeNtRa Science(Holdings)Ltd	CNR 14D621K	620V	IEC/EN 61051-1 IEC/EN 61051-2	UL:E316325
Alt.	Thinking Electronic Industrial Co., Ltd.	TVR14681 TVR14621	680V,V-0,105°C 620V,V-0,85°C	IEC/EN 61051-1 IEC/EN 61051-2 UL1449	UL: E314979 VDE: 005944
Alt.	Thinking Electronic Industrial Co., Ltd.	TVR14621-M TVR14681-M	620V,V-0,125°C	IEC/EN 61051-1 IEC/EN 61051-2 UL1449	UL: E314979 VDE: 40036061
Alt.	Thinking Electronic Industrial Co., Ltd.	TVR14681-D TVR14621-D	680V,V-0, 85°C/105°C 620V,V-0, 85°C/105°C	IEC/EN 61051-1 IEC/EN 61051-2 UL1449	UL: E314979 VDE: 40021243
Alt.	TDK (ZHUHAI FTZ) CO., LTD. (UL) TDK Electronics GmbH & Co OG (VDE)	SIOV-S14K4 20 (UL) S14K420 (VDE)	680V,V-0,105°C	IEC/EN 61051-1 IEC/EN 61051-2 UL1449	UL: E321126 VDE: 40027582
Alt.	Centra Science Corp	CNR-14D681K	680V,V-0,105°C	IEC/EN 61051-1 IEC/EN 61051-2 UL1449	UL: E316325 VDE: 40008220
Alt.	Xianhua New Sensitive Components Branch(UL) Guangdong Fenghua Advanced Technology Holding Co., Ltd.(VDE)	FNR-14K681	680V,V-0, 85°C/105°C/125°C	IEC/EN 61051-1 IEC/EN 61051-2 UL1449	UL: E325462 VDE: 40008242

Alt.	Joyin Co., Ltd.	14N681K 14N621K	680V,V-0, 85°C	IEC/EN 61051-1 IEC/EN 61051-2 UL1449	UL: E325508 VDE: 005937
Alt.	Fenghua Adv.Tech.(Holdi ng)Co., Ltd.	FNR-14K62 1 FNR-14C621K	620V,85°C/105°C/ 125°C 620V,V-0,85°C/10 5°C/125°C	IEC/EN 61051-1 IEC/EN 61051-2 UL1449	UL: E325462 VDE: 40008242
Alt.	Thinking Electronic Industrial Co., Ltd.	TVR14681- M	680V,V-0,125°C	IEC/EN 61051-1 IEC/EN 61051-2 UL1449	UL: E314979 VDE: 40036061
Alt.	Chengdu Tieda Electronics Corporation	14KAC420S MYN15-621K	680V,V-0,85°C 620V,V-0,85°C	IEC/EN 61051-1 IEC/EN 61051-2 UL1449	UL:E334320 VDE: 40008571
Alt.	Xianhua New Sensitive Components Branch(UL) Guangdong Fenghua Advanced Technology Holding Co., Ltd.(VDE)	FNR-14C681K	680V,V-0, 85°C/105°C/125°C	IEC/EN 61051-1 IEC/EN 61051-2 UL1449	UL: E325462 VDE: 40008242
Alt.	Nanjing Shagon Electronics Co., Ltd	MYG14K681	680V,V-0, 85°C/125°C	IEC/EN 61051-1 IEC/EN 61051-2 UL1449	UL: E321069 TUV SUD: B 079712 0004
Fuse	Dongguan Better Electronics Technology Co., Ltd.	932	250VAC 3.15A	IEC 60127-3 IEC 60127-1	UL:E300003 VDE: 40033369
Alt.	Dongguan Better Electronics Technology Co., Ltd.	524	T15AH 250V T20AH 250V	UL248-1,UL248- 1 4	UL:E300003 TUV Rheinland:J 50157552
Alt.	Shenzhen Lanson Electronics Co.,Ltd.	SMT	250VAC 3.15A	IEC 60127-3 IEC 60127-1	UL:E221465 VDE: 40012592
Alt.	Suzhou Walter Electronic Co. Ltd.	TSC- Serie(s)(VDE) TSC(UL)	T15AH 250VAC	ANSI/UL 248-1 IEC 60127-1 IEC 60127-2	UL:E56092 VDE: 40026062
X2 Capacitor	WUXI WANSHENG ELECTRONIC CO.,LTD.	MKP	0.68uF X2 275VAC	IEC/EN 60384- 14	VDE: 40043893
Alt.	Jiangsu Xinghua Huayu Electronics Co Ltd	MPX	0.68uF X2 275VAC	IEC/EN 60384- 14	VDE: 40022417

Alt.	ZheJiang JiaXing Carli Electronics Co.,Ltd.	MPX	0.68uF X2 275VAC	IEC/EN 60384-14	VDE: 40008520
Alt.	WINDAY ELECTRONIC (DONG GUAN) CO.,LTD	MPX	0.68uF X2 275VAC	IEC/EN 60384-14	VDE: 40030283
Alt.	CARLI ELECTRONICS CO., LTD	MPX	0.68,,1.0uF,2.2uF,3.3uF,275/310Vac, 100°C/110°C	UL 60384-14 IEC 60384-14	UL: E120045 VDE: 40008520
Alt.	Shenzhen Jinghao Capacitor Co., Ltd.	CBB62B	1.0uF,2.2uF,3.3uF,280/305Vac, 110°C	UL 60384-14 IEC 60384-14	UL:E252286 VDE: 40018690
Alt.	EUROPTRONIC (SUZHOU) CO LTD(UL) Europtronic (SuZhou) Co. Ltd.(VDE)	MPX2	1.0uF,2.2uF,3.3uF, 275/305Vac, 110°C	UL 60384-14 IEC 60384-14	UL:E521918 VDE: 40025981
Alt.	FOSHAN CITY XINYUAN ELECTRONIC CO LTD	MKP-X2	1.0uF,2.2uF,3.3uF,275/305/310Vac, 100°C/105°C/110°C	UL 60384-14 IEC60384-14	UL: E318581 VDE:40027433
Alt.	Guangdong Fengming Electronic Tech Co., Ltd.	MKP-X2	1.0uF,2.2uF,3.3uF,275/305/310Vac, 105°C/110°C	UL 60384-14 IEC 60384-14	UL: E345487 VDE:40025702
Alt.	Xiamen Faratronic Co. Ltd.	MKP62	1.0uF,2.2uF,3.3uF,275/305/310Vac, 100°C/105°C / 110°C	UL 60384-14 IEC 60384-14	UL: E186600 VDE: 40000358
Alt.	ZhuHai Sung Ho Electronics Co. Ltd.	CMPP(UL) CMPP series(ENE C)	1.0uF,2.2uF,3.3uF,275/305/310Vac, 105°C/110°C	UL 60384-14 IEC 60384-14	UL:E327138 ENEC:ENEC-0297 6-A1
Alt.	KEMET ELECTRONICS ITALIA SRL(UL) ARCOTRONICS(EN E C)	R.46	1.0uF,2.2uF,3.3uF,275Vac/300Vac/310Vac, 110°C/125°C	UL 60384-14 IEC 60384-14	UL:E97797 ENEC:V4413/CA08.00063
Alt.	Nistronics (Jiangxi) Co., Ltd.	MER	1.0uF,2.2uF,3.3uF,310Vac, 105°C	UL 60384-14 IEC60384-14 EN 60384-14	UL:E338685 VDE: 40047423
Alt.	Sichuan Zhongxing Electr. Co. Ltd.	MKP61	1.0uF,2.2uF,3.3uF,275/305VAC, 100°C/110°C	UL60384-14 EN60384-14 IEC 60384-14	UL: E217215 VDE: 40032626
Alt.	Nistronics (Jiangxi) Co., Ltd.	MPR	1.0uF,2.2uF,3.3uF,310Vac/275Vac, 100°C/110°C	UL60384-14 EN60384-14 IEC 60384-14	UL : E338685 VDE: 40032056
Alt.	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	MPX	1.0uF,2.2uF,3.3uF,275/305/310 Vac, 110°C	UL 60384-14 IEC60384-14	UL:E208107 VDE: 40034679

Alt.	NANJING TENGEN RONG GUANG DA ELECTRONIC SALES CO., LTD.	MKP	1.0uF,2.2uF,3.3uF,275/280/300/305/310 Vac, 110°C	UL 60384-14 IEC 60384-14	UL:E502081 VDE: 40049725
Alt.	Yangzhou Nissei Electronics Co., Ltd.	MP1	1.0uF,2.2uF,3.3uF,275Vac/300Vac/305Vac/310Vac,85°C/100 °C/110°C	UL 60384-14 IEC 60384-14	UL:E351313 VDE: 40041628
Alt.	SICHUAN ZHONGXING ELECTRONIC CO LTD	MKP61 Series	1.0uF,2.2uF,3.3uF,310VAC, 110°C	UL60384-14 EN60384-14	UL: E217215 ENEC:HN 69262302
Alt.	Carli Electronics Co., Ltd.	MPX(UL) MPX series(ENE C)	1.0uF,2.2uF,3.3uF,275/310Vac , 100°C/110°C	UL 60384-14 EN 60384-14	UL:E120045 ENEC: ENEC16/FI/ 19/100 77/A
Alt.	LIAONING DIYA CAPACITOR CO LTD	MKP-X2	1.0uF,2.2uF,3.3uF,275Vac/280 Vac/305Vac, 105 °C	UL 60384-14 IEC 60384-14	UL:E305002 VDE: 40019857
Y Capacitor	JYH HSU (JEC)ELECTRONIC S LTD	JD Y1	222M 400VAC	IEC/EN 60384-14	VDE: 40038642
Alt.	Jyh Chung Electronic Co., Ltd.	JD Y1	222M 400VAC	IEC/EN 60384-14	VDE: 137027
Alt.	Guangdong Heda Electronics Co., Ltd	JD Y1	222M 400VAC	IEC/EN 60384-14	VDE: 40051050
Alt.	TDK Corporation	CD	1000pF,4700pF, 250Vac, 125°C	UL 60384-14 IEC60384-14	UL: E37861 VDE: 40029780
Alt.	TDK Corporation	CD (UL) CD (miniature series)(VDE)	1000pF,4700pF, 400Vac 125°C	UL 60384-14 IEC60384-14	UL: E37861 VDE: 40017931
Alt.	Yinan Don's Electronic Component Co., Ltd.	CT81	1000pF,4700pF,250Vac/400Vac, 125°C	UL 60384-14 IEC60384-14	UL: E145038 VDE:135256
Alt.	Walsin Technology Corp	AH Series(UL) AH(VDE)	1000pF,4700pF, 400Vac, 125°C	UL 60384-14 IEC60384-14	UL:E146544 VDE: 40001804
Alt.	Walsin Technology Corp	AC Series(UL) AC(VDE)	10000pF, AC 250/300V, 125°C	UL 60384-14 IEC60384-14	UL:E146544 VDE: 40001829
Alt.	TDK CORPORATION	CD series(ENE C) CD(UL)	1000pF,4700pF,400Vac, 125°C	UL 60384-14 IEC60384-14	ENEC:ENEC -0104 8-A3 UL:E37861
Alt.	Murata Mfg. Co., Ltd.	KX(UL) KX(VDE)	1000pF,4700pF, 250/300Vac, 125°C	UL 60384-14 IEC60384-14	UL:E37921 VDE:400028 31
Alt.	MURATA MFG CO LTD	EA	1000pF,300Vac/250Vac,125°C	UL 60384-14 IEC60384-14	UL:E37921 ENEC : SE- ENEC- 2401372

Alt.	Kunshan Wansheng Electronics Co., Ltd	CT7	1000pF,4700pF, AC500/400/300/250 V, 125°C	UL 60384-14 IEC60384-14	UL:E249006 VDE: 40012143
Alt.	KUNSHAN WANSHENG ELECTRONICS CO LTD	CT7	10000pF, AC500/400/300/250, 125°C	UL 60384-14 IEC 60384-14	UL:E249006 VDE: 40017735
Alt.	Guangdong South Hongming Electronic Science and Technology Co., Ltd.	F	1000pF,4700pF,250Vac/400Vac, 125°C	UL 60384-14 IEC60384-14	UL:E154899 VDE: 40036393
Alt.	Guangdong South Hongming Electronic Science and Technology Co., Ltd.	F	4700pF,10000pF, AC250/300/400V, 125°C	UL 60384-14 IEC60384-14	UL:E154899 VDE: 40036246
Alt.	Guangdong South Hongming Electronic Science and Technology Co., Ltd.	F(UL) F Series(ENEC)	1000pF,250Vac/400Vac, 125°C	UL 60384-14 IEC60384-14	UL:E154899 ENEC- 01195-A1
Alt.	Sichuan TRX Technology Co.,Ltd.(UL)Sichuan Teruixiang Technology International Co Ltd(ENEC)	TRX(UL) TRX series(ENEC)	1000pF,4700pF,250Vac/400Vac, 125°C	UL 60384-14 IEC60384-14	UL:E315719 ENEC- 02084-M2
Alt.	Sichuan TRX Technology Co.,Ltd.(UL) Shenzhen Teruixiang Electronic Co, Ltd. (VDE)	TY(UL) TY-Series(VDE)	1000pF,4700pF,500Vac/400Vac, 125°C	UL 60384-14 IEC 60384-14	UL:E315719 VDE: 40031733
Alt.	Handan Aoneng Electronic Co., Ltd.	CT7	1000pF,4700pF,250Vac/300Vac/400Vac, 125°C	UL 60384-14 IEC60384-14	UL:E471404 VDE: 40041436
Alt.	Gaoyao Dafeng Electronic Co., Ltd.	CD(UL) CD series(VDE)	1000pF,4700pF,250Vac/400Vac, 125°C	UL 60384-14 IEC60384-14	UL:E475573 VDE: 40042271
Alt.	Xiamen Wanming Electronics Co., Ltd.	HM	Y2, 10000pF,AC250/300V, 125°C	UL 60384-14 IEC60384-14	UL:E221839 VDE: 40034436
Alt.	XIAMEN WANMING ELECTRONICS CO LTD	CM, SD, CK	1000pF,250/300/400/500 Vac, 125°C	UL 60384-14 EN 60384-14	UL:E221839 ENEC:ENEC -04533
Alt.	ANSHAN KEIFAT ELECTRONIC CERAMIC TECHNICAL CO LTD(UL) Anshan Kei Fat Electronic Ceramic Technical Co., Ltd.(VDE)	CT7	1000pF,250Vac/400Vac, 125°C	UL 60384-14 IEC60384-14	UL:E232980 VDE: 40043423
Relay	Xiamen Hongfa Electroacoustics Co., Ltd.	JZC-32F	5A, 250VAC, T85°C	IEC/EN 61810-1 IEC 60079-15	VDE: 40012204 CNEx25.024 5U

Alt.	Xiamen Hongfa Electroacoustics Co., Ltd.	HF46F	5A,250Vac,T85°C	IEC/EN 61810-1 IEC 60079-15	VDE: 40025215 CNEx25.424 1U
Alt.	Xiamen Hongfa Electroacoustic Co., Ltd.	HF102F,JQX - 102F,HF102F-P	20A,250VAC,T85 °C	IEC/EN 61810-1 IEC 60079-15	VDE: 40024142 CNEx25.024 6U
Alt.	Xiamen Hongfa Electroacoustic Co., Ltd.	HF161F Serie(s)	20A,250VAC,T85 °C	IEC/EN 61810-1 IEC 60079-15	VDE: 40031410 CNEx25.191 2U
Alt.	Sanyou Corporation Limited	SJ-SH-112D M2	5A,250Vac,T85°C	IEC/EN 61810-1 IEC 60079-15	VDE: 40002146 TUV:R 50142420 CNEx24.477 0U
Alt.	Sanyou Corporation Limited	SRB-SH-11 2DM2	5A,250VAC/277V AC,T85°C	IEC/EN 61810-1 IEC 60079-15	VDE: 40033402 CNEx24.476 8U
Alt.	Sanyou Corporation Limited	SJ-SH-112E MS3	16A,250VAC, T85 °C	IEC/EN 61810-1 IEC 60079-15	TUV: R 50142420 CNEx24.477 0U
Alt.	Sanyou Corporation Limited	SFK-112DMP SFK-112DM	20A,250VAC, T85°C	IEC/EN 61810-1 IEC 60079-15	TUV: R 50138321 VDE: 40007481 CNEx24.476 9U
Alt.	Zhejiang Meishuo Electric Technology Co., Ltd.	MPD-S-112- A	5A,250VAC,T85 °C	IEC/EN 61810-1 IEC 60079-15	TUV: R 50184948 CNEx25.265 5U
Alt.	Zhejiang Meishuo Electric Technology Co., Ltd.	MPR-S-112- A	5A,250VAC/277V AC,T85°C	IEC/EN 61810-1 IEC 60079-15	TUV: R 50217035 CNEx25.265 7U
Alt.	Zhejiang Meishuo Electric Technology Co., Ltd.	MPY-S-112-A MPY-S-112-A-P	20A,250VAC, T85°C	IEC/EN 61810-1 IEC 60079-15	TUV: R 50204088 CNEx25.265 6U
Alt.	Wangrong Electronics (Shenzhen) Co., Ltd	RJ-SS-112D M-S	5A,250VAC, T85 °C	IEC/EN 61810-1 IEC 60079-15	TUV: R 50222701 CNEx24.122 5X
Alt.	Dongguan Churod Electronics Co., Ltd.	CHM-S-112 DA3	5A,250VAC, T85 °C	IEC/EN 61810-1 IEC 60079-15	TUV: R 50196152 CNEx25.038 9U
Alt.	DONGGUAN CHUROD ELECTRONICS CO LTD	CHF-S-112DA2 CHFN-S-112DA2	20A,250VAC, T85°C	IEC/EN 61810-1 IEC 60079-15	TUV: R 50220099 CNEx24.149 4U
Alt.	Wangrong Electronics (Shenzhen) Co., Ltd	RF-SS-112DM RF-SS-112DMF	20A,250VAC, T85°C	IEC/EN 61810-1 IEC 60079-15	TUV: R 50194013 CNEx22.159 4U

Alt.	DONGGUAN CHUROD ELECTRONICS CO LTD	A1-S-112DA	5A,250VAC, T85 °C	IEC/EN 61810-1 IEC 60079-15	TUV: R50174892 CNEx24.076 5U
Alt.	Shenzhen Yuanze Electric Co., Ltd.	Y32F-SH-11 2DM	5A,250VAC , T105°C	IEC/EN 61810-1 IEC 60079-15	TUV R 50198475 CNEx22.036 8U
Indoor fan motor for 09K	shengzhou city Dongfang motor CO., LTD	YYK13-4	AC208-240V 50Hz 13W Class B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	SHENGZHOU DINGSHANGFENGLI ELECTRIC APPLIANCE CO.LTD	YYK16-4	AC220-240V 50Hz 16W Class B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Indoor fan motor for 12K	shengzhou city Dongfang motor CO., LTD	YYK18-4	AC208-240V 50Hz 18W Class B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	SHENGZHOU DINGSHANGFENGLI ELECTRIC APPLIANCE CO.LTD	YYK16-4	AC220-240V 50Hz 16W Class B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Indoor fan motor for 18K	shengzhou city Dongfang motor CO., LTD	YYK18-4	AC220-240V 50Hz 50W Class B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	SHENGZHOU DINGSHANGFENGLI ELECTRIC APPLIANCE CO.LTD	YYK16-4	AC220-240V 50Hz 16W Class B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Indoor fan motor for 24K/30K	shengzhou city Dongfang motor CO., LTD	YYK50-4C	AC220-240V 50Hz 50W Class B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Thermal motor protector for YYK13-4	Jiangsu Changsheng Electric Appliance Co., Ltd.	18AM-C*	AC250V, Tf=100°C	IEC 60730-1 IEC 60730-2-2	VDE: 40022813
Thermal motor protector for YYK18-4,	Jiangsu Changsheng Electric Appliance Co., Ltd.	BR-B5D*	AC250V, Tf=100°C	IEC 60730-1 IEC 60730-2-2	VDE: 40015984
Thermal motor protector for YYK50-4C	Jiangsu Changsheng Electric Appliance Co., Ltd.	18AM-B*	AC250V, Tf=130°C	IEC 60730-1 IEC 60730-2-2	VDE: 40022813
Alt.	DONGYANG HENGDIAN THERMAL PROTECTOR FACTORY (GENERAL PARTNERSHIP)	KSD-**	AC250V, Tf=130°C AC250V, Tf=100°C	IEC 60730-1 IEC 60730-2-2	VDE: 40047162
Alt.	Foshan Changhong Tongli Electric Appliance Co.,Ltd	KW-***	AC250V, Tf=130°C AC250V, Tf=100°C	IEC 60730-1 IEC 60730-2-2	VDE: 40020906

Thermal motor protector for YYK16-4	Shengzhou Ganlin Wangshi Thermal Protector Factory	JW-2T *	AC250V, Tf=150°C	IEC 60730-1 IEC 60730-2-2	VDE: 40006013
Outdoor fan motor for 09K	shengzhou city Dongfang motor CO., LTD	YDK25-6A	AC220V 50Hz 25W CLASS B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	SHENGZHOU DINGSHANGFENGLI ELECTRIC APPLIANCE CO.LTD	YDK25-6A 220V/50Hz	AC220V 50Hz 25W CLASS B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Outdoor fan motor for 12K	shengzhou city Dongfang motor CO., LTD	YDK25-6	AC220V 50Hz 25W CLASS B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	SHENGZHOU DINGSHANGFENGLI ELECTRIC APPLIANCE CO.LTD	YDK25-6	AC220V 50Hz 25W CLASS B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Outdoor fan motor for 18/24K/30K	shengzhou city Dongfang motor CO., LTD	YYS50-6	AC220V 50Hz 50W CLASS B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	SHENGZHOU DINGSHANGFENGLI ELECTRIC APPLIANCE CO.LTD	YDK50-6	AC220V 50Hz 50W CLASS B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Thermal motor protector for YDK25-6A YDK25-6 YYS50-6	Jiangsu Changsheng Electric Appliance Co., Ltd.	18AM-B* 18AM-C*	AC250V, Tf=150°C	IEC 60730-1 IEC 60730-2-2	VDE: 40022813
Alt.	Jiangsu Changsheng Electric Appliance Co., Ltd.	BR-B5D*	AC250V, Tf=150°C	IEC 60730-1 IEC 60730-2-2	VDE: 40015984
Alt.	DONGYANG HENGDIAN THERMAL PROTECTOR FACTORY (GENERAL PARTNERSHIP)	KSD-**	AC250V, Tf=150°C	IEC 60730-1 IEC 60730-2-2	VDE: 40047162
Alt.	Foshan Changhong Tongli Electric Appliance Co.,Ltd	KW-**	AC250V, Tf=150°C	IEC 60730-1 IEC 60730-2-2	VDE: 40020906
Thermal motor protector for YDK25-6A YDK25-6 YDK50-6	Shengzhou Ganlin Wangshi Thermal Protector Factory	JW-2T *	AC250V, Tf=150°C	IEC 60730-1 IEC 60730-2-2	VDE: 40006013
Motor running capacitor for 09K/12K/18K/24K/30K Outdoor unit	GUANGDONG FENGMING ELECTRONIC TECH. CO., LTD.	CBB61	2.5μF 450VAC 50/60Hz S0 T70/T85	IEC 60252-1	VDE: 40006835

Alt.	GUANGDONG FENGMING ELECTRONIC TECH. CO., LTD.	CBB61	2.5μF 450VAC 50/60Hz S0 T70/T85	IEC 60252-1	TUV: R 50253769
Alt.	GUANGDONG FENGMING ELECTRONIC TECH. CO., LTD.	CBB61-P2	2.5μF 450VAC 50/60Hz S3 T70/T85	IEC 60252-1	TUV: R 50163114
Alt.	GUANGDONG FENGMING ELECTRONIC TECH. CO., LTD.	CBB61-P2	2.5μF 450VAC 50/60Hz S3 T70/T85	IEC 60252-1	VDE: 40044992
Alt.	Ningguo Shuangjie Electric Appliance Co., Ltd.	CBB61	2.5μF 450VAC 50/60Hz S3 T70/T85	IEC 60252-1	TUV: R 50456490
Alt.	NINGGUO HUILI ELECTRIC CO., LTD.	CBB61	2.5μF 450VAC 50/60Hz S0 T70/T85	IEC 60252-1	TUV: R 50280012
Alt.	NINGGUO HUILI ELECTRIC CO., LTD.	CBB61	2.5μF 450VAC 50/60Hz S3 T70/T85	IEC 60252-1	TUV: R 50461227
Power plug only for models with rated current below 16A (optional)	Cixi Fuyong Wire And Cable Co., Ltd.	FY1-101	AC250V 16A	VDE 0620-1 VDE 0620-2-1	B 117025 0001 Rev. 01
Alt.	Cixi Yuantong Cable Appliance Co., Ltd.	YT-3	AC250V 16A	VDE 0620-1 VDE 0620-2-1	VDE: 40052645
Power plug for UK only for models with rated current below 13A (optional)	Ningbo Weiyun Electronic Co Ltd	EP888 WY-P001	AC250V 13A	BS 1363-1	KM 562806
Power cord 0.75mm ² only for models with rated current below 6A; 1.0mm ² only for 09/12 series; 1.5mm ² except for 30 series	Cixi Yuantong Cable Appliance Co., Ltd.	H05VV-F	3x0.75mm ² 3x1.0mm ² 3x1.5mm ² 3x2.5mm ²	VDE 0620-1 VDE 0620-2-1	VDE: 40052017
Alt.	CIXI FUYONG WIRE AND CABLE CO., LTD.	H05VV-F	3x0.75mm ² 3x1.0mm ² 3x1.5mm ² 3x2.5mm ²	VDE 0620-1 VDE 0620-2-1	VDE: 40054911

Interconnection cord 0.75mm ² only for models with rated current below 6A; 1.0mm ² only for 09/12 series; 1.5mm ² except for 30 series	Zhejiang Heye Wire & Cable Co., Ltd.	H05RN-F/ H07RN-F	2×0.75mm ² 3×1.0 mm ² 3×1.5mm 3×2.5mm ²	EN50525-2-21	VDE: 40055516
Alt.	Cixi Yuanlong Cable Appliance Co., Ltd.	H05RN-F/ H07RN-F	2×0.75mm ² 3×1.0 mm ² 3×1.5mm 3×2.5mm ²	EN50525-2-21	VDE: 40052071
Internal wire	NINGBO HAOGUANG ELECTRIC APPLIANCE CO LTD	1015	20AWG/18AWG/1 6AWG/14AWG 105°C 600V	IEC 60335-1 IEC 60335-2-40	UL:E192545 Tested with appliance
Alt.	NINGBO HAOSHEN WIRE & CABLE CO LTD	1015	20AWG/18AWG/1 6AWG/14AWG 105°C 600V	IEC 60335-1 IEC 60335-2-40	UL:E490469 Tested with appliance
Alt.	XINYA ELECTRONIC CO LTD	1015	20AWG/18AWG/1 6AWG/14AWG 105°C 600V	IEC 60335-1 IEC 60335-2-40	UL:E170689 Tested with appliance
Plastic enclosure	LianYunGang Petrochemical CO., LTD.	STL 888GH	HIPS	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Terminal block	Changzhou Changhengxinyi Electric Co., Ltd.	JX-OB-3P	600V 4mm ²	IEC 60998-1 IEC 60998-2-1	TUV: R 50362708
Motor compressor for 09K	LG Electronics Tianjin Appliances Co., Ltd.	DSG075MMA	DC280V, R32	IEC 60335-1 IEC 60335-2-34	JPTUV-178651
Motor compressor for 12K	LG Electronics Tianjin Appliances Co., Ltd.	DSG102MNA	DC280V, R32	IEC 60335-1 IEC 60335-2-34	JPTUV-178647
Alt.	Guangdong Meizhi Compressor Ltd.	KSK103D32UEZ31	DC210V, at 240Hz, R32	IEC 60335-1 IEC 60335-2-34	R 506368620001
Motor compressor for 18K	Avic Electromechanical (Shenyang) Sanyo Refrigeration Equipment Co., Ltd.	C-4RZ120H3AAF	DC108V, R32	IEC 60335-1 IEC 60335-2-34	TUV R 50635314
Motor compressor for 24K	Avic Electromechanical (Shenyang) Sanyo Refrigeration Equipment Co., Ltd.	C-4RZ140H3AAF	DC130V, R32	IEC 60335-1 IEC 60335-2-34	CN72777
Motor compressor for 30K	Guangdong Meizhi Compressor Ltd.	KTM210D15UFZA3	DC230V, at 240Hz, R32	IEC 60335-1 IEC 60335-2-34	TUV R 50391999

Electrically operated valve	Zhongshan City Gangli Refrigeration Fittings Co., Ltd.	SHF-3 SHF-4 SHF-7	220-240VAC 50/60Hz	IEC 60730-1	VDE 40026249
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. 2) License available upon request.					

24.1-2	TABLE: Critical components information				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard ²⁾	Mark(s) of conformity ¹⁾
For the all fixed frequency air conditioner					
PCB board	KINGBOARD (FOGANG) LAMINATES LIMITED	KB-5150	CEM-1 1.6mm FV-0	IEC 60695-11-0	VDE 40040433 E123995
Alt.	Kingboard Laminates Holdings Limited	KB-5150	CEM-1 1.6mm FV-0	IEC 60695-11-0	VDE 40040433 E123995
Alt.	Guangdong Shengyi Sci.Tech Co.,Ltd.	S1141	1.6mm V-0	IEC 60695-11-0	VDE 40010780 E109769
Motor running capacitor for 09K/12K/18K/24K/30K Indoor unit	Anhui Feida Electrical Technology Co., Ltd.	CBB61-P	1.5μF, 3μF, 450VAC 50/60Hz S3 T70	EN 60252-1	VDE 40036245
Alt.	Anhui Feida Electrical Technology Co., Ltd.	CBB61-P	1.5μF, 3μF, 450VAC 50/60Hz S3 T70	EN 60252-1	TUV R 50132899 VDE: 40036245
Alt.	Guangdong Fengming Electronic Tech.Co.,Ltd.	CBB61	1.5μF, 3μF, 450VAC 50/60Hz S3 T70	EN 60252-1	TUV R 50274996
Alt.	Guangdong Fengming Electronic Tech.Co.,Ltd.	CBB61-P2	1.5μF, 3μF, 450VAC 50/60Hz S3 T70/T85	EN 60252-1	VDE 40044992
Alt.	Guangdong Fengming Electronic Tech.Co.,Ltd.	CBB61-P2	1.5μF, 3μF, 450VAC 50/60Hz S3 T70/T85	EN 60252-1	TUV R 50163114
Alt.	Guangdong Fengming Electronic Tech.Co.,Ltd.	CBB61	1.5μF, 3μF, 450VAC 50/60Hz S0 T70/T85	EN 60252-1	VDE 40006835
Alt.	Guangdong Fengming Electronic Tech.Co.,Ltd.	CBB61	1.5μF, 3μF, 450VAC 50/60Hz S0 T70/T85	EN 60252-1	TUV R 50253769
Alt.	Ningbo Shine Electrical Co.,Ltd.,	CBB61A	1.5μF, 3μF, 450VAC 50/60Hz S0 T70/T85	EN 60252-1	TUV R 50076953
Transformer	Hefei Saintlang Electronic Technology Co., Ltd	EE16-1.2mH SLTF16021	Class 130 (B) Output Triple Insulated Winding Wire	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	Junyao Electronics (Xuyi) Co., Ltd.	EE16-1.2mH 12V 0.8A	Class 130 (B) Output Triple Insulated Winding Wire	IEC 60335-1 IEC 60335-2-40	Tested with appliance

Alt.	Huizhou Huichuan Xinchun Technology Co., Ltd.	HCJHE16021	Class 130 (B) Output Triple Insulated Winding Wire	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	Foshan Kaishuo Electronic Appliance Co., Ltd.	EE1608-0.79mH	Class 130 (B) Output Triple Insulated Winding Wire	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Varistor	Nanjing Jocol Electronics Technology Co.,LTD	TUR14D621KP	620V	IEC/EN 61051-1 IEC/EN 61051-2	E535724
Alt.	CeNtRa Science(Holdings)Ltd	14D621K	620V	IEC/EN 61051-1 IEC/EN 61051-2	VDE 40008220
Alt.	Fujian Qiaoguang Electronic Technology co.,ltd.	FTR14D621KJ	620V	IEC/EN 61051-1 IEC/EN 61051-2	VDE 40051843
Triple insulated winding wire for Transformer	Shenzhen Kaizhong Hedong New Materials Co., Ltd.	TIW-B	Reinforced insulation, 130° C TIW-B	IEC 62368-1 IEC 61558-2-16	VDE 40038861
Alt.	Shanghai Lucky Trade Co., Ltd.	TIW-B	Reinforced insulation, 130° C TIW-B	IEC 62368-1 IEC 61558-2-16	VDE 40023686
Fuse	Dongguan Better Electronics Technology Co., Ltd.	932	250VAC 3.15A	IEC 60127-3 IEC 60127-1	VDE 40033369
Alt.	Shenzhen Lanson Electronics Co.,Ltd.	SMT	250VAC 3.15A	IEC 60127-3 IEC 60127-1	VDE 40012592
Alt.	Hollyland (Xiamen) Technology Corporation Limited	5ET	AC 250V 5A	IEC 60127-1 IEC 60127-3	VDE 40015669
Relay	Sanyou Corporation Limited	SJ-SH-112DM-F(EX)	5A 250VAC	IEC/EN 61810-1 IEC 60079-15	VDE 40002146 CNEx19.5422 U CNEx19.5434 U CNEx19.5438 U CNEx22.6131 U
Alt.	XIAMEN HONGFA ELECTROACOUSTIC CO.,LTD	JZC-32F-012-HS Ex	5A 250VAC	IEC/EN 61810-1 IEC 60079-15	VDE 40012204 ExTR Free Ref. No.: 64.105.19.307 52.01

Alt.	XIAMEN HONGFA ELECTROACOUSTIC CO.,LTD	JQX-102F	20A 250VAC	IEC/EN 61810-1 IEC 60079-15	VDE 40024142 ExTR Free Ref. No.: 64.105.16.001 59.03
Alt.	Sanyou Corporation Limited	SFK-112DM (EX)	20A 250VAC	IEC/EN 61810-1 IEC 60079-15	VDE 40007481 CNEx19.5420 U CNEx19.5435 U CNEx22.6132 U
Alt.	Sanyou Corporation Limited	SLI-SH-112DMK-P-F(EX)	30A 250VAC	IEC/EN 61810-1 IEC 60079-15	VDE 40036707 CNEx19.5423 U CNEx19.5437 U
X2 Capacitor	WUXI WANSHENG ELECTRONIC CO.,LTD.	MKP	0.22uF/0.033uF X2 275VAC	IEC/EN 60384-14	VDE 40043893
Alt.	Jiangsu Xinghua Huayu Electronics Co Ltd	MPX	0.22uF/0.033uF X2 275VAC	IEC/EN 60384-14	VDE 40022417
Alt.	ZheJiang JiaXing Carli Electronics Co.,Ltd.	MPX	0.22uF/0.033uF X2 275VAC	IEC/EN 60384-14	VDE 40008520
Alt.	CARLI ELECTRONICS CO., LTD	MPX	0.22uF/0.033uF X2 275VAC	IEC/EN 60384-14	VDE 40008520
Alt.	WINDAY ELECTRONIC (DONG GUAN) CO.,LTD	MPX	0.22uF/0.033uF X2 275VAC	IEC/EN 60384-14	VDE 40030283
Alt.	WUXI WANSHENG ELECTRONIC CO.,LTD.	MKP	0.47uF X2 275VAC	IEC/EN 60384-14	VDE 40043893
Alt.	Jiangsu Xinghua Huayu Electronics Co Ltd	MPX	0.47uF X2 275VAC	IEC/EN 60384-14	VDE 40022417
Alt.	ZheJiang JiaXing Carli Electronics Co.,Ltd.	MPX	0.47uF X2 275VAC	IEC/EN 60384-14	VDE 40008520
Alt.	CARLI ELECTRONICS CO., LTD	MPX	0.47uF X2 275VAC	IEC/EN 60384-14	VDE 40008520
Alt.	WINDAY ELECTRONIC (DONG GUAN) CO.,LTD	MPX	0.47uF X2 275VAC	IEC/EN 60384-14	VDE 40030283
Alt.	Ningbo Jiangbei Zhenhua Electronic Co., Ltd.,	CBB62	0.22UF 0.033UF X2 275VAC	IEC/EN 60384-14	VDE 40006458
Y Capacitor	JYH HSU (JEC)ELECTRONIC S LTD	JD Y1	222M 400VAC	IEC/EN 60384-14	VDE 40038642
Alt.	Jyh Chung Electronic Co., Ltd.	JD Y1	222M 400VAC	IEC/EN 60384-14	VDE 137027

Alt.	Guangdong Heda Electronics Co., Ltd	CE	222M 400VAC	IEC/EN 60384-14	VDE 40051050
Alt.	GuangDong South HongMing Electronic Science and Technology Co., Ltd	F Y1	222M 400VAC	IEC/EN 60384-14	VDE 40036393
Indoor fan motor for 09K	shengzhou city Dongfang motor CO., LTD	YYK13-4	AC208-240V 50Hz 13W Class B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	SHENGZHOU DINGSHANGFENG LI ELECTRIC APPLIANCE CO.LTD	YYK16-4	AC220-240V 50Hz 16W Class B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Indoor fan motor for 12K	shengzhou city Dongfang motor CO., LTD	YYK18-4	AC208-240V 50Hz 18W Class B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	SHENGZHOU DINGSHANGFENG LI ELECTRIC APPLIANCE CO.LTD	YYK16-4	AC220-240V 50Hz 16W Class B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Indoor fan motor for 18K	shengzhou city Dongfang motor CO., LTD	YYK18-4	AC220-240V 50Hz 50W Class B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	SHENGZHOU DINGSHANGFENG LI ELECTRIC APPLIANCE CO.LTD	YYK16-4	AC220-240V 50Hz 16W Class B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Indoor fan motor for 24K/30K	shengzhou city Dongfang motor CO., LTD	YYK50-4C	AC220-240V 50Hz 50W Class B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Thermal motor protector for YYK13-4	Jiangsu Changsheng Electric Appliance Co., Ltd.	18AM-C*	AC250V, Tf=100°C	IEC 60730-1 IEC 60730-2-2	VDE 40022813
Thermal motor protector for YYK18-4,	Jiangsu Changsheng Electric Appliance Co., Ltd.	BR-B5D*	AC250V, Tf=100°C	IEC 60730-1 IEC 60730-2-2	VDE 40015984
Thermal motor protector for YYK50-4C	Jiangsu Changsheng Electric Appliance Co., Ltd.	18AM-B*	AC250V, Tf=130°C	IEC 60730-1 IEC 60730-2-2	VDE 40022813
Alt.	DONGYANG HENGDIAN THERMAL PROTECTOR FACTORY (GENERAL PARTNERSHIP)	KSD-**	AC250V, Tf=130°C AC250V, Tf=100°C	IEC 60730-1 IEC 60730-2-2	VDE 40047162
Alt.	Foshan Changhong Tongli Electric Appliance Co.,Ltd	KW-**	AC250V, Tf=130°C AC250V, Tf=100°C	IEC 60730-1 IEC 60730-2-2	VDE 40020906

Thermal motor protector for YYK16-4	Shengzhou Ganlin Wangshi Thermal Protector Factory	JW-2T *	AC250V, Tf=150°C	IEC 60730-1 IEC 60730-2-2	VDE 40006013
Outdoor fan motor for 09K	shengzhou city Dongfang motor CO., LTD	YDK25-6A	AC220V 50Hz 25W CLASS B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	SHENGZHOU DINGSHANGFENG LI ELECTRIC APPLIANCE CO.LTD	YDK25-6A 220V/50Hz	AC220V 50Hz 25W CLASS B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Outdoor fan motor for 12K	shengzhou city Dongfang motor CO., LTD	YDK25-6	AC220V 50Hz 25W CLASS B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	SHENGZHOU DINGSHANGFENG LI ELECTRIC APPLIANCE CO.LTD	YDK25-6	AC220V 50Hz 25W CLASS B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Outdoor fan motor for 18/24K	shengzhou city Dongfang motor CO., LTD	YYS50-6	AC220V 50Hz 50W CLASS B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Alt.	SHENGZHOU DINGSHANGFENG LI ELECTRIC APPLIANCE CO.LTD	YDK50-6	AC220V 50Hz 50W CLASS B	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Thermal motor protector for YDK25-6A YDK25-6 YYS50-6	Jiangsu Changsheng Electric Appliance Co., Ltd.	18AM-B* 18AM-C*	AC250V, Tf=150°C	IEC 60730-1 IEC 60730-2-2	VDE 40022813
Alt.	Jiangsu Changsheng Electric Appliance Co., Ltd.	BR-B5D*	AC250V, Tf=150°C	IEC 60730-1 IEC 60730-2-2	VDE 40015984
Alt.	DONGYANG HENGDIAN THERMAL PROTECTOR FACTORY (GENERAL PARTNERSHIP)	KSD-**	AC250V, Tf=150°C	IEC 60730-1 IEC 60730-2-2	VDE 40047162
Alt.	Foshan Changhong Tongli Electric Appliance Co.,Ltd	KW-**	AC250V, Tf=150°C	IEC 60730-1 IEC 60730-2-2	VDE 40020906
Thermal motor protector for YDK25-6A YDK25-6 YDK50-6	Shengzhou Ganlin Wangshi Thermal Protector Factory	JW-2T *	AC250V, Tf=150°C	IEC 60730-1 IEC 60730-2-2	VDE 40006013
Motor running capacitor for 09K/12K/18K/24K Outdoor unit	GUANGDONG FENGMING ELECTRONIC TECH. CO., LTD.	CBB61	2.5µF 450VAC 50/60Hz S0 T70/T85	IEC 60252-1	VDE 40006835

Alt.	GUANGDONG FENGMING ELECTRONIC TECH. CO., LTD.	CBB61	2.5 μ F 450VAC 50/60Hz S0 T70/T85	IEC 60252-1	TUV R 50253769
Alt.	GUANGDONG FENGMING ELECTRONIC TECH. CO., LTD.	CBB61-P2	2.5 μ F 450VAC 50/60Hz S3 T70/T85	IEC 60252-1	TUV R 50163114
Alt.	GUANGDONG FENGMING ELECTRONIC TECH. CO., LTD.	CBB61-P2	2.5 μ F 450VAC 50/60Hz S3 T70/T85	IEC 60252-1	VDE 40044992
Alt.	Ningguo Shuangjie Electric Appliance Co., Ltd.	CBB61	2.5 μ F 450VAC 50/60Hz S3 T70/T85	IEC 60252-1	TUV R 50456490
Alt.	NINGGUO HUILI ELECTRIC CO., LTD.	CBB61	2.5 μ F 450VAC 50/60Hz S0 T70/T85	IEC 60252-1	TUV R 50280012
Alt.	NINGGUO HUILI ELECTRIC CO., LTD.	CBB61	2.5 μ F 450VAC 50/60Hz S3 T70/T85	IEC 60252-1	TUV 50461227
Running capacitor for compressor for 09K/12K/18K/24K/30K Outdoor unit	NINGGUO HUILI ELECTRIC CO., LTD.	CBB65	30 μ F/35 μ F/40 μ F/ 45 μ F 450VAC 50/60Hz S2 T85	IEC 60252-1	TUV R 50280011
Alt.	Ningguo Zhaoyang Electric Co., Ltd.	CBB65	30 μ F/35 μ F/40 μ F/ 45 μ F 450VAC 50/60Hz S2 T85	IEC 60252-1	TUV R 50294318
Alt.	Wuxi Hongguang Capacitor CO., LTD	CBB65	30 μ F/35 μ F/40 μ F/ 45 μ F 450VAC 50/60Hz S2 T7	IEC 60252-1	TUV R 50198120
Power plug only for models with rated current below 16A (optional)	Cixi Fuyong Wire And Cable Co., Ltd.	FY1-101	AC250V 16A	VDE 0620-1 VDE 0620-2-1	B 117025 0001 Rev. 01
Alt.	Cixi Yuantong Cable Appliance Co., Ltd.	YT-3	AC250V 16A	VDE 0620-1 VDE 0620-2-1	VDE 40052645
Power plug for UK only for models with rated current below 13A (optional)	Ningbo Weiyun Electronic Co Ltd	EP888 WY-P001	AC250V 13A	BS 1363-1	KM 562806

Power cord 0.75mm ² only for models with rated current below 6A; 1.0mm ² only for 09/12 series; 1.5mm ² except for 30 series	Cixi Yuantong Cable Appliance Co., Ltd.	H05VV-F	3x0.75mm ² 3x1.0mm ² 3x1.5mm ² 3x2.5mm ²	VDE 0620-1 VDE 0620-2-1	VDE 40052017
Alt.	CIXI FUYONG WIRE AND CABLE CO., LTD.	H05VV-F	3x0.75mm ² 3x1.0mm ² 3x1.5mm ² 3x2.5mm ²	VDE 0620-1 VDE 0620-2-1	VDE 40054911
Interconnecti on cord 0.75mm ² only for models with rated current below 6A; 1.0mm ² only for 09/12 series; 1.5mm ² except for 30 series	Zhejiang Heye Wire & Cable Co., Ltd.	H05RN-F/ H07RN-F	2x0.75mm ² 3x1.0 mm ² 3x1.5mm ² 3x2.5mm ²	EN50525-2-21	VDE 40055516
Alt.	Cixi Yuantong Cable Appliance Co., Ltd.	H05RN-F/ H07RN-F	2x0.75mm ² 3x1.0 mm ² 3x1.5mm ² 3x2.5mm ²	EN50525-2-21	VDE 40052071
Internal wire	NINGBO HAOGUANG ELECTRIC APPLIANCE CO LTD	1015	20AWG/18AWG/ 1 6AWG/14AWG 105°C 600V	IEC 60335-1 IEC 60335-2-40	UL E192545 Tested with appliance
Alt.	NINGBO HAOSHEN WIRE & CABLE CO LTD	1015	20AWG/18AWG/ 1 6AWG/14AWG 105°C 600V	IEC 60335-1 IEC 60335-2-40	UL E490469 Tested with appliance
Alt.	XINYA ELECTRONIC CO LTD	1015	20AWG/18AWG/ 1 6AWG/14AWG 105°C 600V	IEC 60335-1 IEC 60335-2-40	UL E170689 Tested with appliance
Plastic enclosure	LianYunGang Petrochemical CO.,LTD.	STL 888GH	HIPS	IEC 60335-1 IEC 60335-2-40	Tested with appliance
Terminal block	Changzhou Changhengxinyi Electric Co., Ltd.	JXW-2-H	600V 4mm ²	IEC 60998-1 IEC 60998-2-1	TUV R 50362708
Alt.	Changzhou Changhengxinyi Electric Co., Ltd.	JX-OB-4P	600V 4mm ²	IEC 60998-1 IEC 60998-2-1	TUV R 50362708
Motor compressor for 09K	LG Electronics (TianJin) Appliances Co.,Ltd	DAB086HNA	AC220V 50Hz R32	IEC 60335-1 IEC 60335-2-34	CN65259 +2230100- 2560- 0000/289267r ev1

Motor compressor for 12K	Guangdong Meizhi Compressor Ltd.	KSM130V02VDZ	AC220-240V 50Hz R32	IEC 60335-1 IEC 60335-2-34	R 50627779 0001
Motor compressor for 18K	Guangdong Meizhi Compressor Ltd.	ASM140V01VDZ E	AC220-240V 50Hz R32	IEC 60335-1 IEC 60335-2-34	R 50340728 0042
Motor compressor for 24K	Zhuhai Landa Compressor Co., Ltd.	QXA-C193E030U	AC220-240V 50Hz R32	IEC 60335-1 IEC 60335-2-34	B 001628 0286 Rev. 00
Motor compressor for 30K	Guangdong Meizhi Compressor Ltd.	ASG250V01SMT	AC220-240V 50Hz R32	IEC 60335-1 IEC 60335-2-34	R 50618809 0003
Electrically operated valve	Zhongshan City Gangli Refrigeration Fittings Co., Ltd.	SHF-3 SHF-4 SHF-7	220-240VAC 50/60Hz	IEC 60730-1	VDE 40026249

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)	
Screw for earthing continuity	3,9	II	1,2	
Supplementary information: —				

29.1	TABLE: Clearances					P
	Overvoltage category				II	—
		Type of insulation:				
Rated impulse voltage (V):	Min. cl (mm)	Basic (mm)	Supplementary (mm)	Reinforced (mm)	Functional (mm)	Verdict / Remark
330	0,2* / 0,5 / 0,8**	—	—	—	—	N/A
500	0,2* / 0,5 / 0,8**	—	—	—	—	N/A
800	0,2* / 0,5 / 0,8**	—	—	—	—	N/A
1 500	0,5 / 0,8** / 1,0***	—	—	—	—	N/A
2 500	1,5 / <u>2,0***</u>	B1	S1	—	F1	P
4 000	3,0 / <u>3,5***</u>	—	—	R1	—	P
6 000	5,5 / 6,0***	—	—	—	—	N/A
8 000	8,0 / 8,5***	—	—	—	—	N/A
10 000	11,0 / 11,5***	—	—	—	—	N/A

Supplementary information:

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

**) For pollution degree 3

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

Remark:

B1: Between the live terminals and the earthed metal: Cl.=4,3 mm;

R1: Between live part and accessible plastic enclosure: Cl.=7,5 mm;

S1: Between internal wire and accessible plastic surface: Cl.=5,5 mm;

F1: Between the L and N poles on the main PCB: Cl.=5,0 mm; (Pollution degree 2)

29.2	TABLE: Creepage distances, basic, supplementary and reinforced insulation										P
Working voltage (V)	Creepage distance (mm) Pollution degree							Type of insulation			Verdict
	1	2			3						
		Material group			Material group						
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*	B**	S**	R**	
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9		—	—	N/A
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9	—		—	N/A
≤50	0,36	1,2	1,7	2,4	3,0	3,4	3,8	—	—		N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4		—	—	N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4	—		—	N/A
125	0,56	1,5	2,1	3,0	3,8	4,2	4,8	—	—		N/A
250	0,56	1,25	1,8	2,5	3,2	3,6	4,0		—	—	N/A
250	0,56	1,25	1,8	2,5	3,2	3,6	4,0	—		—	N/A
250	1,12	2,5	3,6	5,0	6,4	7,2	8,0	—	—		N/A
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	B1	—	—	P
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	—	S1	—	P
400	2,0	4,0	5,6	8,0	10,0	11,2	12,6	—	—	R1	P
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
>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

Remark:

B1: Between the live terminals and the earthed metal: Cr.=6,5 mm;

R1: Between live part and accessible plastic enclosure: Cr.=13,7 mm;

S1: Between internal wire and accessible plastic surface: Cr.= 8,2 mm;

29.2	TABLE: Creepage distances, functional insulation	P
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Working voltage (V)	Creepage distance (mm) Pollution degree							Verdict / Remark
	1	2			3			
		Material group			Material group			
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*	
≤10	0,08	0,4	0,4	0,4	1,0	1,0	1,0	N/A
50	0,16	0,56	0,8	1,1	1,4	1,6	1,8	N/A
125	0,25	0,71	1,0	1,4	1,8	2,0	2,2	N/A
250	0,42	1,0	1,4	2,0	2,5	2,8	3,2	N/A
400	0,75	1,6	2,2	3,2	4,0	4,5	5,0	P: F1
500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	N/A

Supplementary information:
 *) Material group IIIb is allowed if the working voltage does not exceed 50 V
 Remark:
 F1: Between the L and N poles on the main PCB: Cr.=5,0 mm; (Pollution degree 2)

30.1	TABLE: Ball Pressure Test of Thermoplastics			P
Allowed impression diameter (mm)	2,0			—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Plastic enclosure/ Control panel	See table 24.1	75	1,3	
Terminal block	See table 24.1	125	1,0	
Transformer bobbin	See table 24.1	125	1,0	
Connector on PCB	See table 24.1	125	1,4	
Outdoor unit fan motor bobbin	See table 24.1	125	1,4	

Indoor unit fan motor bobbin	See table 24.1	125	1,3
Supplementary information:			

30.2	TABLE: Resistance to heat and fire - Glow wire tests							P
Object/ Part No./ Material	Manufacturer / trademark	Glow wire test (GWT); (°C)						Verdict
		550	650		750		850	
			te	ti	te	ti		
Plastic enclosure/ Control panel/fan	See table 24.1	X	—	—	—	—	—	P
Terminal block	See table 24.1	—	—	—	0s	0s	X	P
Relay	See table 24.1	—	—	—	0s	0s	X	P
X2 capacitor	See table 24.1	—	—	—	0s	0s	X	P
Transformer bobbin	See table 24.1	—	—	—	0s	0s	X	P
Connector on PCB	See table 24.1	—	—	—	0s	0s	X	P
Outdoor unit fan motor bobbin	See table 24.1	—	—	—	0s	0s	X	P
Indoor unit fan motor bobbin	See table 24.1	—	—	—	0s	0s	X	P
Outdoor fan motor capacitors	See table 24.1	—	—	—	0s	0s	X	P
Indoor fan motor capacitors	See table 24.1	—	—	—	0s	0s	X	P
4-way valve	See table 24.1	—	—	—	0s	0s	X	P
Varistor	See table 24.1	—	—	—	0s	0s	X	P
PCB	See table 24.1	—	—	—	0s	0s	X	P
Object/ Part No./ Material	Manufacturer / trademark	Glow-wire flammability index (GWFI), °C				GW ignition temp. (GWIT), °C		Verdict
		550	650	750	850	675	775	
—	—	—	—	—	—	—	—	N/A
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:

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

30.2/30.2.4	TABLE: Needle- flame test (NFT)				P
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
PCB	See table 24.1	30	No	0 s	P

Supplementary information:

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

*** End of test report ***

Type of equipment, Split-type Air Conditioner
model: See main report

Details of: Front view for KFR-30GW/BpH3-100

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: Rear view for KFR-30GW/BpH3-100

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: Right view for KFR-30GW/BpH3-100

View:

- general
- front
- rear
- right
- left
- top
- bottom



The photograph shows a white, rectangular air conditioning unit from a right-side perspective. The top of the unit is covered with a white, crinkled protective sheet, secured by a blue strap. The unit is positioned on a grey concrete floor with yellow and black safety markings. In the background, a blue wall is visible.

Details of: Left view for KFR-30GW/BpH3-100

View:

- general
- front
- rear
- right
- left
- top
- bottom



The photograph shows the same white air conditioning unit from a left-side perspective. The white protective cover and blue strap are visible on the top surface. The unit is on a concrete floor with yellow and black safety markings, and a blue wall is in the background.

Details of: Top view for KFR-30GW/BpH3-100

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: Bottom view for KFR-30GW/BpH3-100

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: Open view for KFR-30GW/BpH3-100

View:

- general
- front
- rear
- right
- left
- top
- bottom



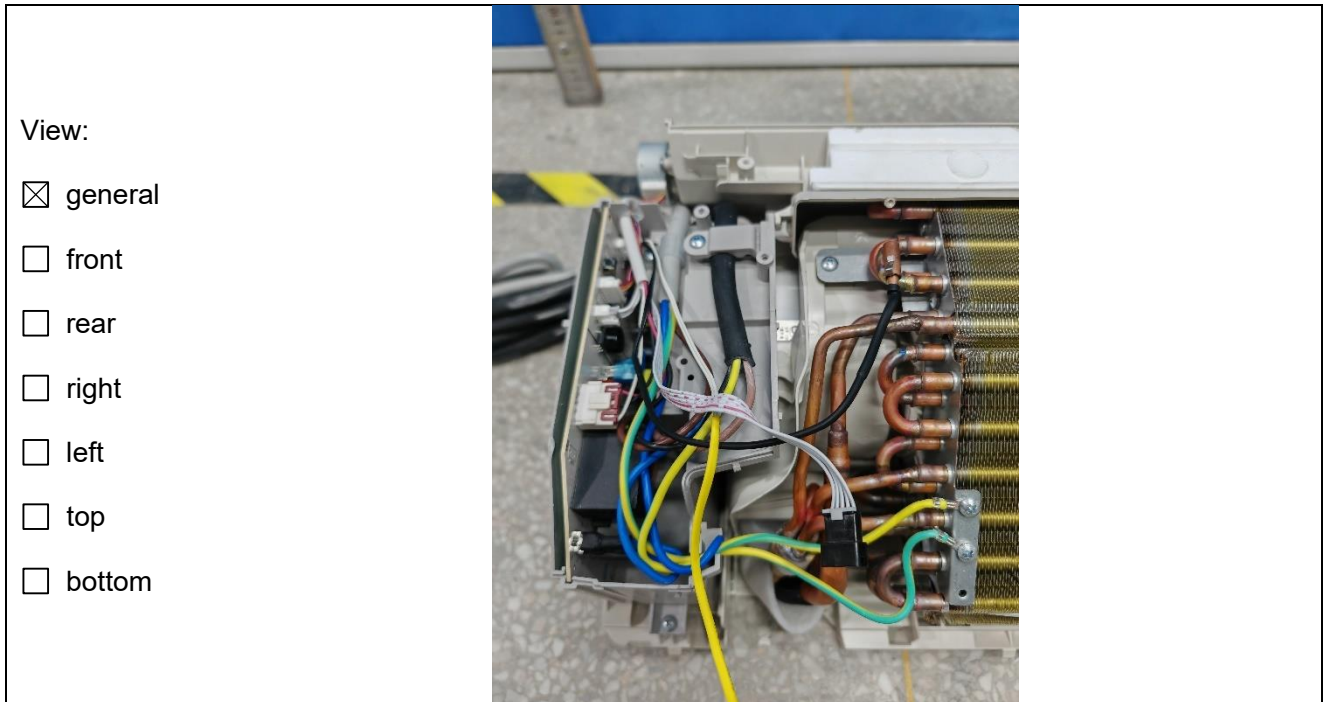
Details of: Open view for KFR-30GW/BpH3-100

View:

- general
- front
- rear
- right
- left
- top
- bottom



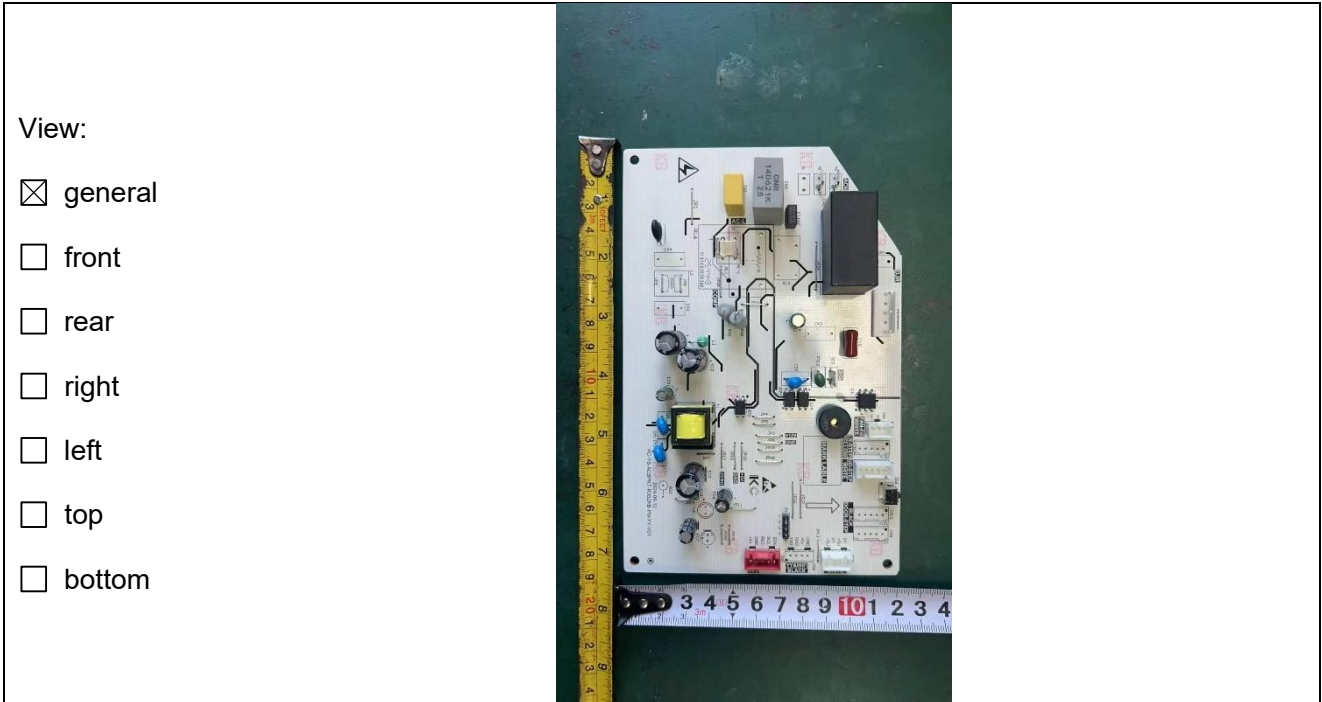
Details of: Open view for KFR-30GW/BpH3-100



Details of: Open view for KFR-30GW/BpH3-100: fan motor



Details of: Control PCB for KFR-30GW/BpH3-100



Details of: Control PCB for KFR-30GW/BpH3-100



Details of: Front view for outdoor unit of KFR-30GW/BpH3-100



Details of: Rear view for outdoor unit of KFR-30GW/BpH3-100



Details of: Top view for outdoor unit of KFR-30GW/BpH3-100



Details of: Right view for outdoor unit of KFR-30GW/BpH3-100



Details of: Left view for outdoor unit of KFR-30GW/BpH3-100

View:

- general
- front
- rear
- right
- left
- top
- bottom



The photograph shows the left side of a white outdoor air conditioning unit. The unit is rectangular with a vertical orientation. The central part of the unit is a dark, vertically-slatted grille. The unit is standing on a light-colored floor with yellow and black safety markings. The background is a solid blue wall.

Details of: Bottom view for outdoor unit of KFR-30GW/BpH3-100

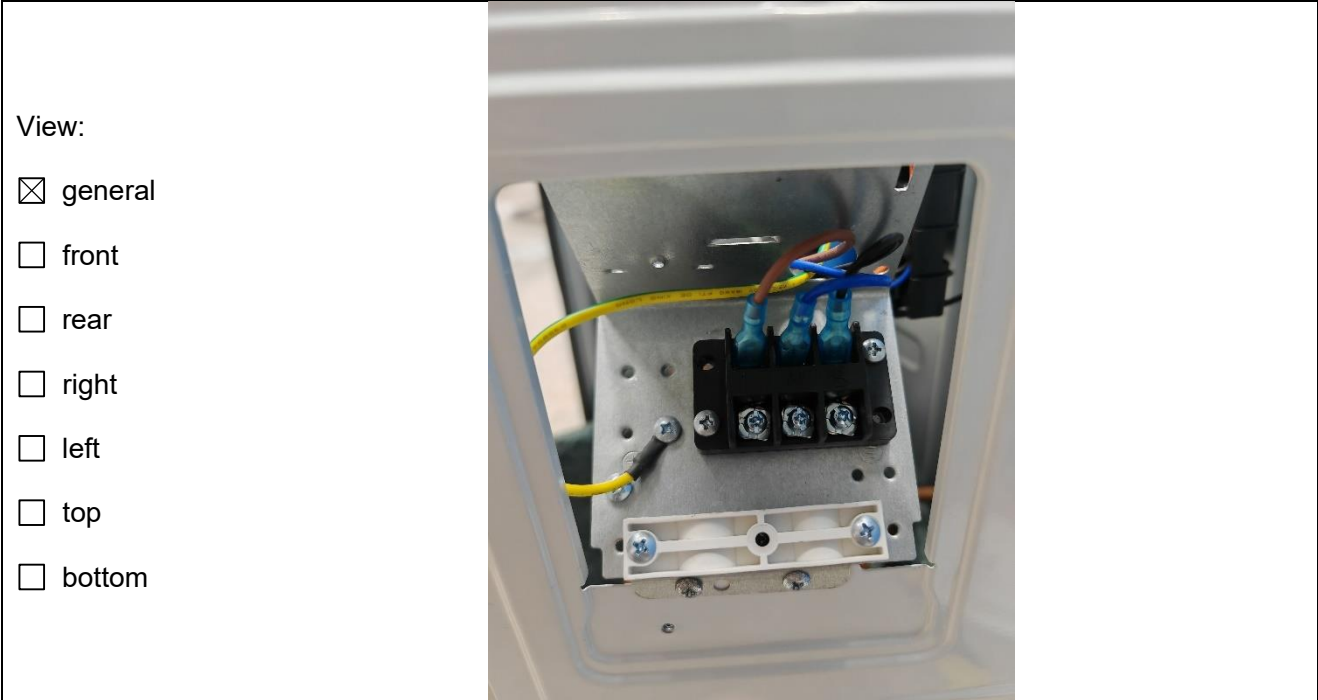
View:

- general
- front
- rear
- right
- left
- top
- bottom

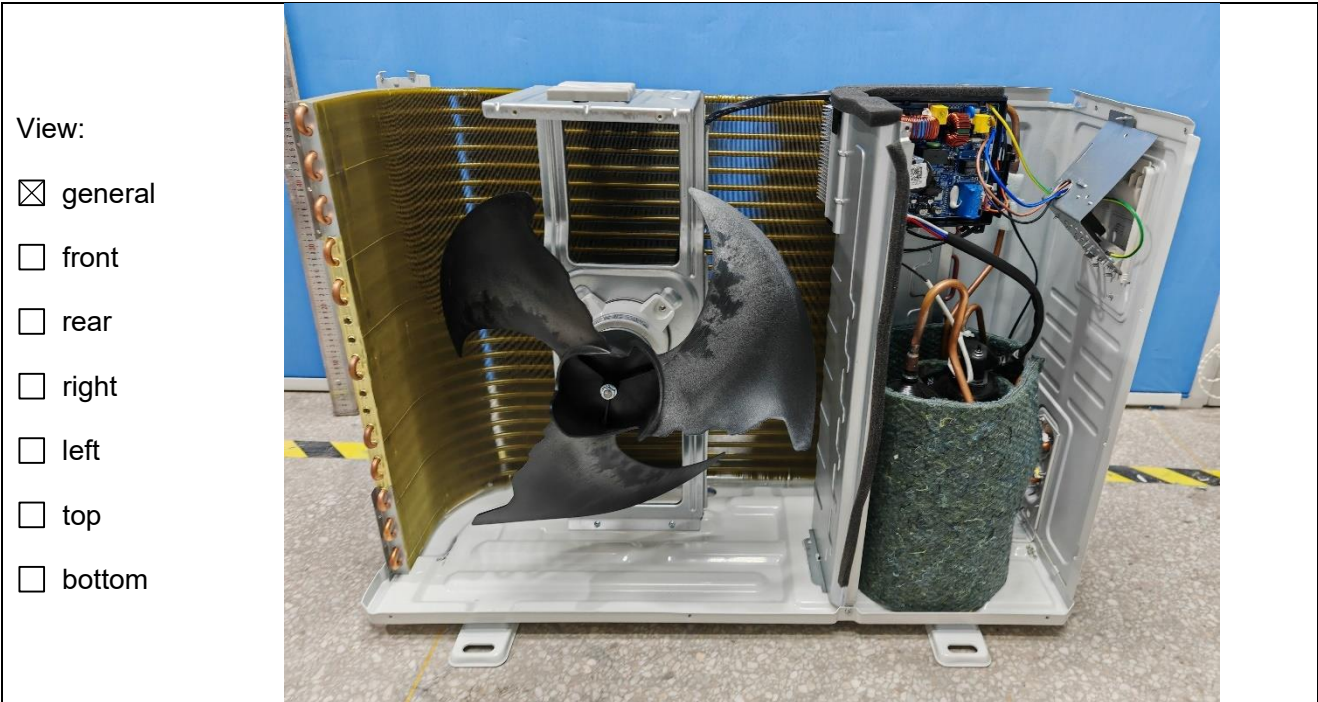


The photograph shows the bottom of the outdoor air conditioning unit. A large, circular fan is visible through a metal grille. The unit is white and has a textured base. The background is a blue wall and a floor with yellow and black safety markings.

Details of: Open view for outdoor unit of KFR-30GW/BpH3-100



Details of: Open view for outdoor unit of KFR-30GW/BpH3-100



Details of: Open view for outdoor unit of KFR-30GW/BpH3-100

View:

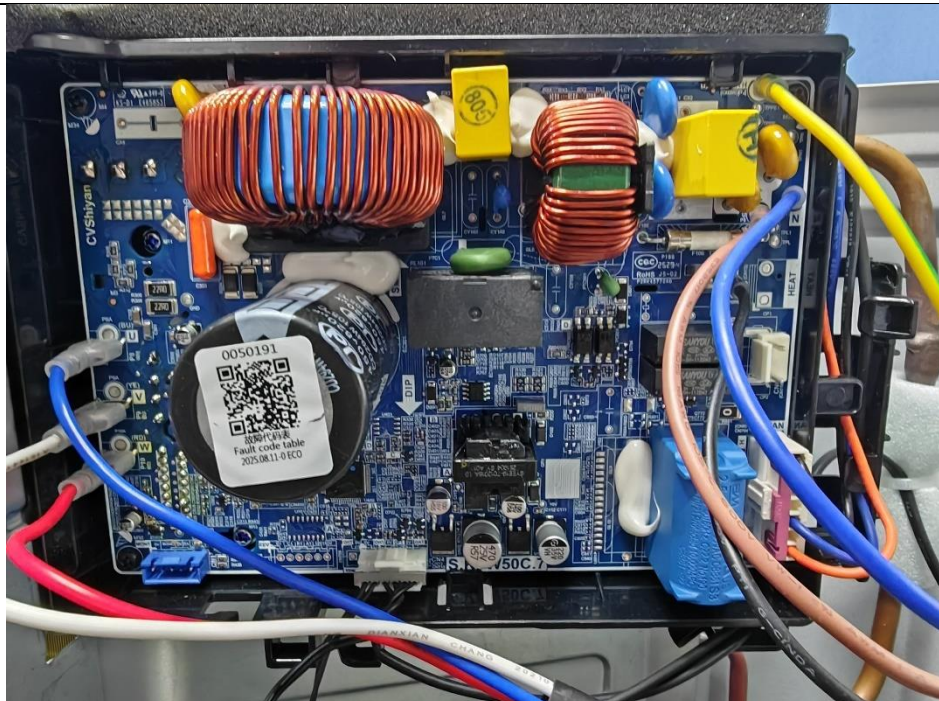
- general
- front
- rear
- right
- left
- top
- bottom



Details of: Open view for outdoor unit of KFR-30GW/BpH3-100

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: Open view for outdoor unit of KFR-30GW/BpH3-100: fan motor

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: Open view for outdoor unit of KFR-30GW/BpH3-100: compressor

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: PCB of KFR-30GW/BpH3-100



Details of: PCB of KFR-30GW/BpH3-100



Details of: Front view for KFR-30GW/H1-100

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: Right view for KFR-30GW/H1-100

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: Left view for KFR-30GW/H1-100

View:

- general
- front
- rear
- right
- left
- top
- bottom



The photograph shows the left side of a white, rectangular air conditioning unit. The unit is completely covered in clear plastic wrap. A yellow label is visible on the top surface. Blue tape is used to secure the plastic wrap at the corners. The unit is placed on a light-colored floor with yellow and black caution tape markings. A blue wall is visible in the background.

Details of: Top view for KFR-30GW/H1-100

View:

- general
- front
- rear
- right
- left
- top
- bottom



The photograph shows the top surface of the white air conditioning unit. It is wrapped in clear plastic, with a yellow label in the center. Blue tape is visible at the corners. The unit is on a floor with yellow and black caution tape. A black cable is partially visible at the bottom right corner.

Details of: Bottom view for KFR-30GW/H1-100

View:

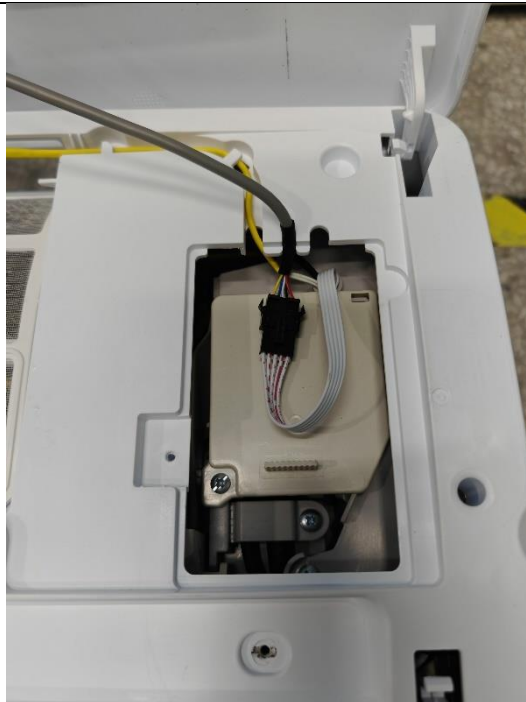
- general
- front
- rear
- right
- left
- top
- bottom



Details of: Open view for KFR-30GW/H1-100

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: Open view for KFR-30GW/H1-100

View:

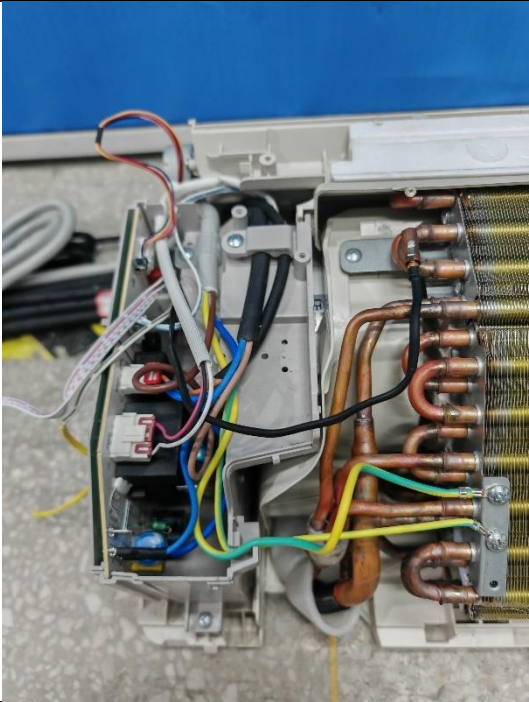
- general
- front
- rear
- right
- left
- top
- bottom



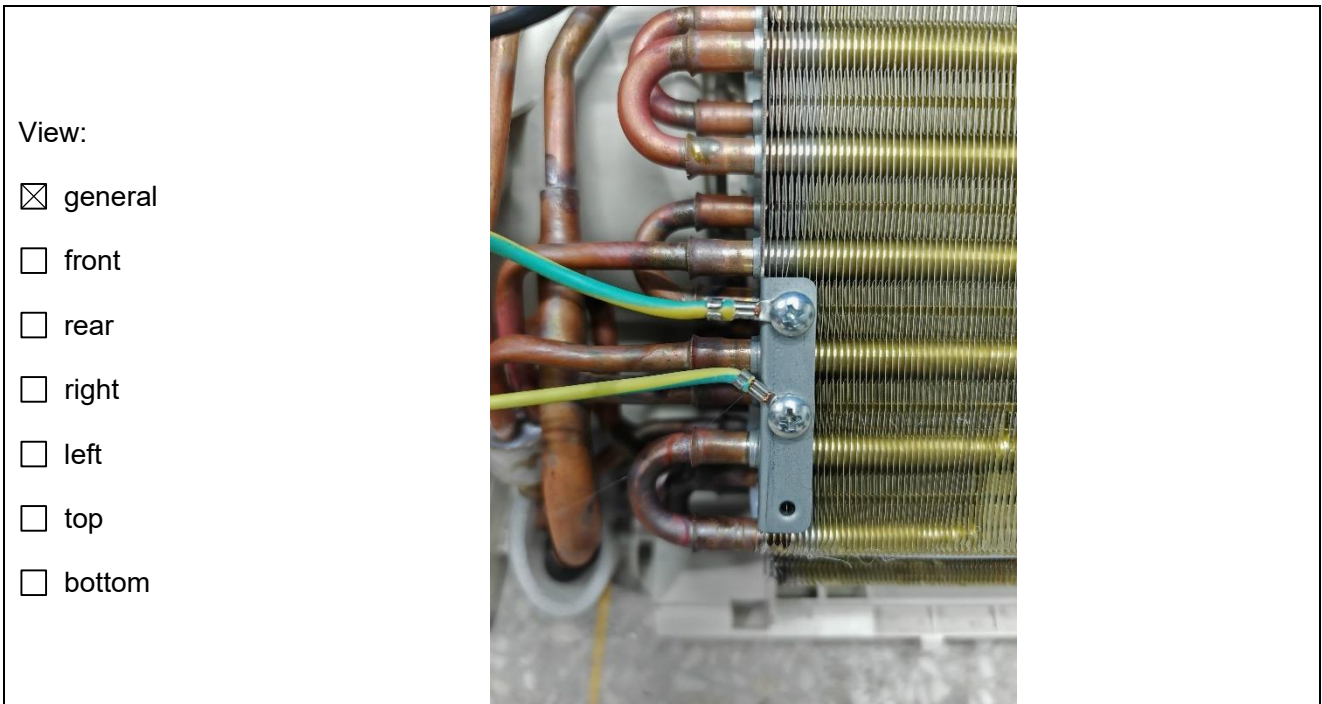
Details of: Open view for KFR-30GW/H1-100

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: Open view for KFR-30GW/H1-100



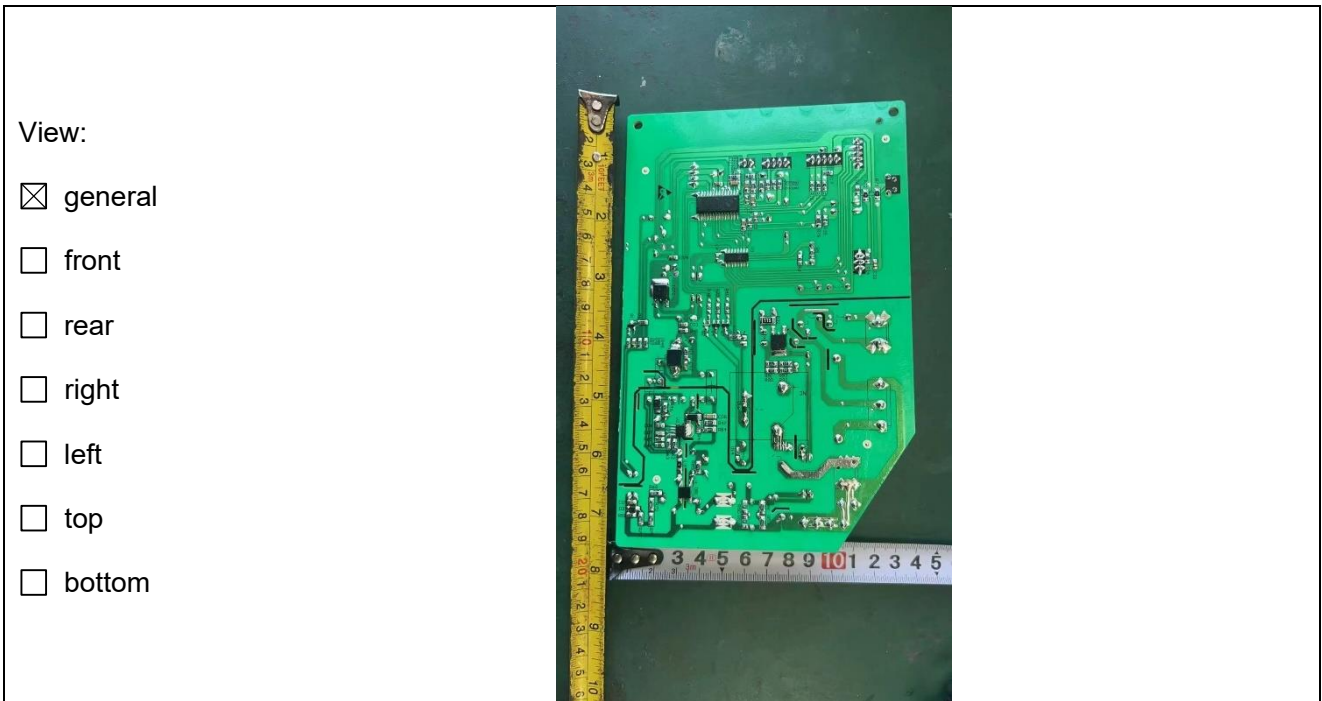
Details of: Open view for KFR-30GW/H1-100: fan motor



Details of: Control PCB for KFR-30GW/H1-100



Details of: Control PCB for KFR-30GW/H1-100



Details of: Front view for outdoor unit of KFR-30GW/H1-100



Details of: Rear view for outdoor unit of KFR-30GW/H1-100



Details of: Top view for outdoor unit of KFR-30GW/H1-100



Details of: Right view for outdoor unit of KFR-30GW/H1-100



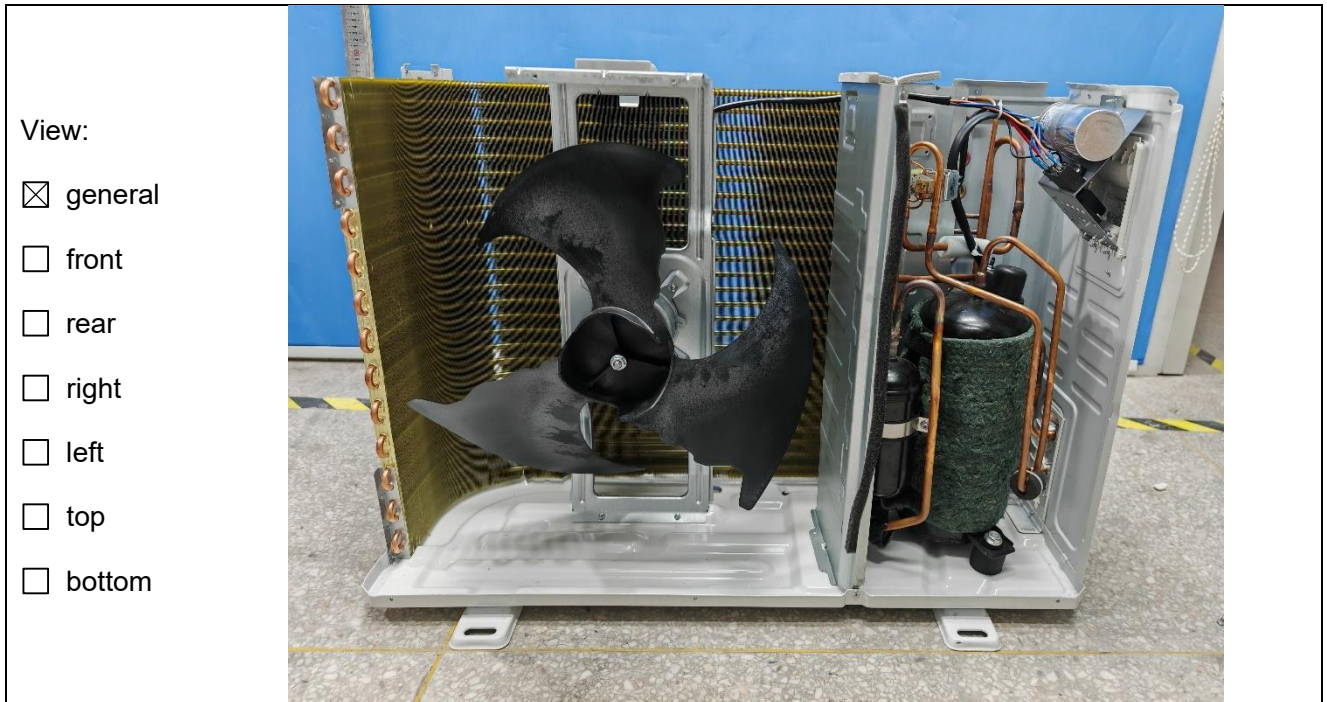
Details of: Left view for outdoor unit of KFR-30GW/H1-100



Details of: Bottom view for outdoor unit of KFR-30GW/H1-100



Details of: Open view for outdoor unit of KFR-30GW/H1-100



Details of: Open view for outdoor unit of KFR-30GW/H1-100



Details of: Open view for outdoor unit of KFR-30GW/H1-100: fan motor



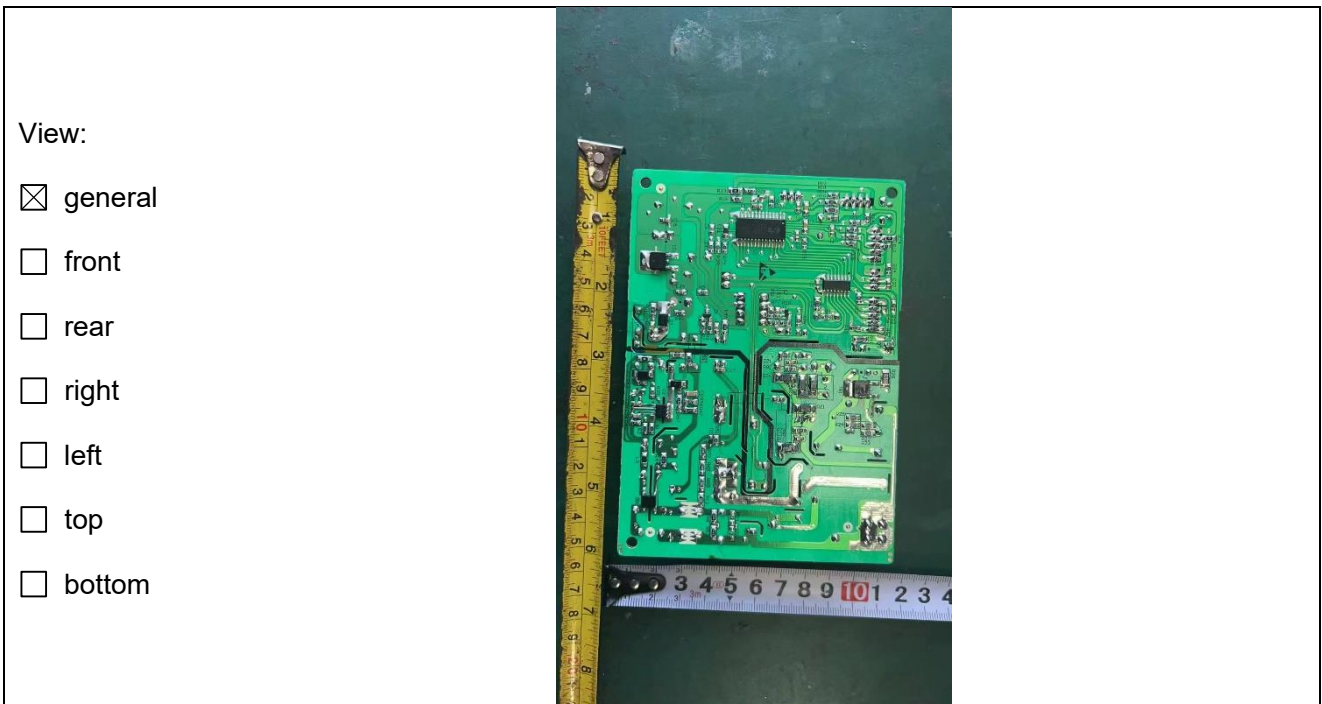
Details of: Open view for outdoor unit of KFR-30GW/H1-100: compressor



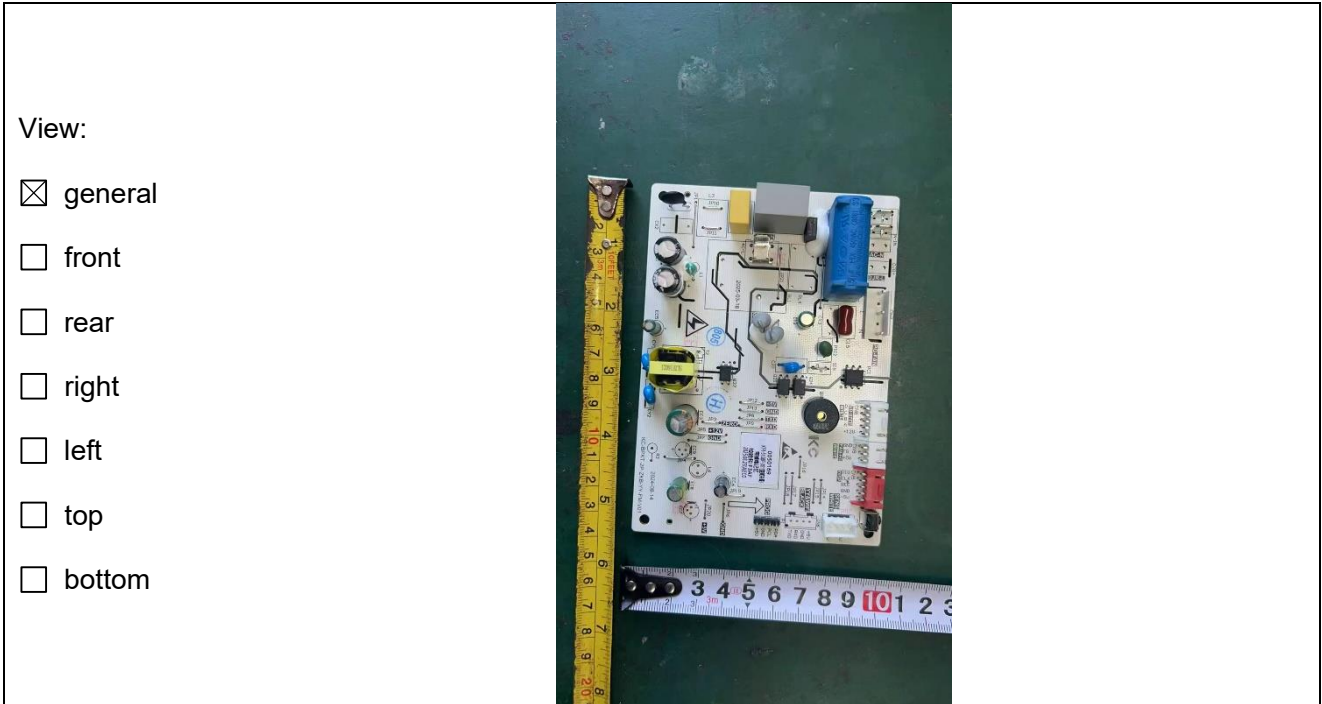
Details of: Control PCB for KF-9GW/BpC3-100, KF-12GW/BpC3-100



Details of: Control PCB for KF-9GW/BpC3-100, KF-12GW/BpC3-100



Details of: Control PCB for KF-18GW/BpC3-100



Details of: Control PCB for KF-18GW/BpC3-100



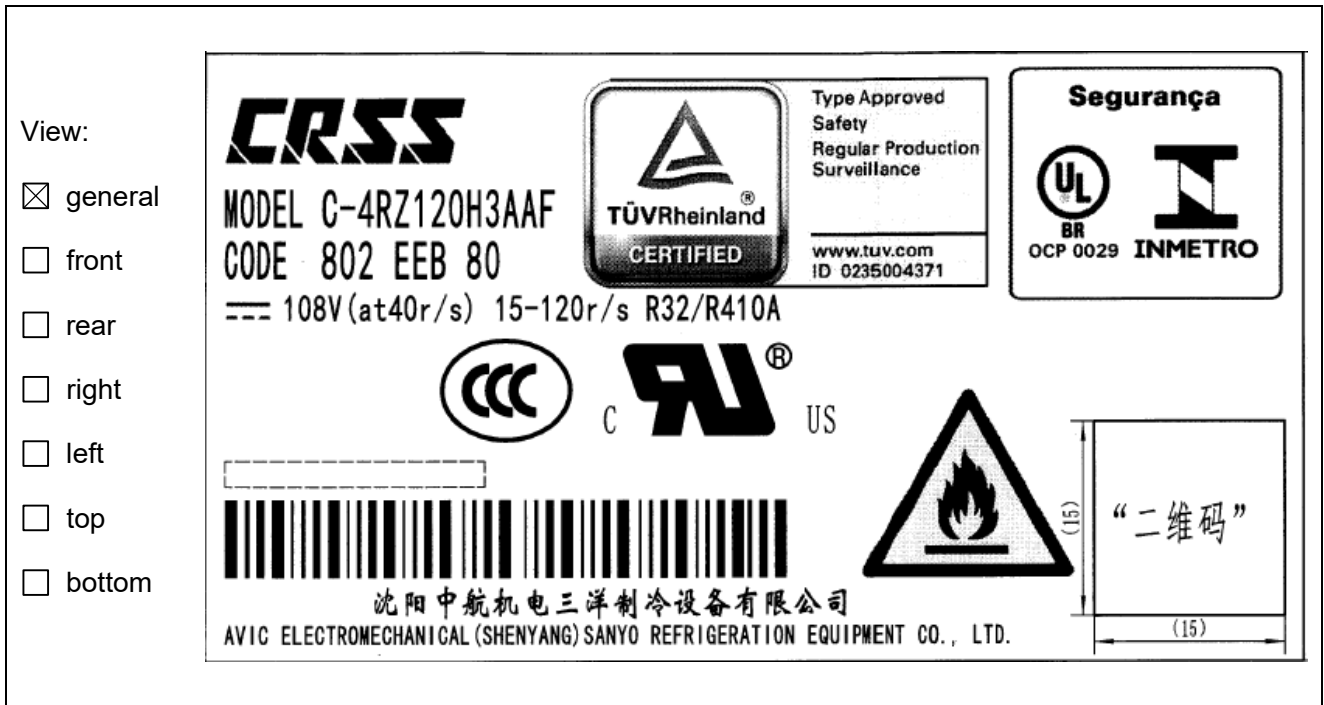
Details of: Open view for outdoor unit of KF-9GW/BpC3-100: compressor



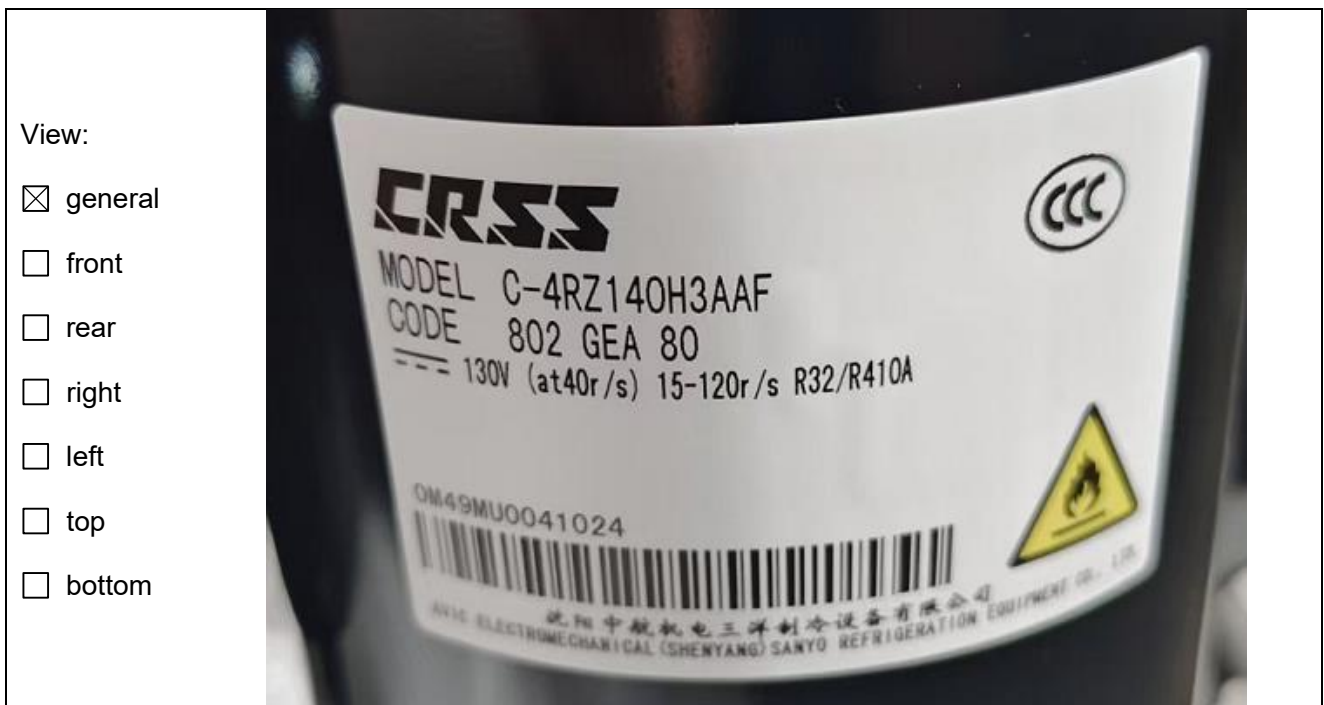
Details of: Open view for outdoor unit of KF-12GW/BpC3-100: compressor



Details of: Open view for outdoor unit of KF-18GW/BpC3-100: compressor



Details of: Open view for outdoor unit of KF-24GW/BpC3-100: compressor



Details of: Open view for outdoor unit of KFR-9GW/H1-100: compressor



Details of: Open view for outdoor unit of KFR-12GW/H1-100: compressor



Details of: Open view for outdoor unit of KFR-18GW/H1-100: compressor

View:

- general
- front
- rear
- right
- left
- top
- bottom


GMCC **ASM140V01VDZE**
220-240V~,1Ph,50Hz R32/R410A (refer to air-conditioner)

W512145239F LRA 28 T00972617ACO
202512

IS 10617
CM/L 4100059072 TÜV Rheinland

Rated Current: 6.30A
Guangdong Meizhi Compressor Ltd. RoHS MADE IN CHINA

Caution : risk of fire
WARNING: Charging R32 or R410A doesn't depend on compressor's label, Pls. refer to air-con's label.



Details of: Open view for outdoor unit of KFR-24GW/H1-100: compressor

View:

- general
- front
- rear
- right
- left
- top
- bottom



LAMDA (CCC)
QXA-C193E030U
1PH 50Hz 220-240V~ R32/R410A
LDNM9Aa22201291
ZHUHAI LANDA COMPRESSOR CO., LTD.
Refrigerant is as per the applied product label

ATTACHMENT to TRF IEC60335_2_40X	
IEC 60335-1:2010, IEC 60335-1:2010/AMD1:2013, IEC 60335-1:2010/AMD2:2016 IEC 60335-2-40:2022 EUROPEAN GROUP DIFFERENCES AND EUROPEAN NATIONAL DIFFERENCES Household and similar electrical appliances – Safety – Part 2-40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers	
Differences according to	EN IEC 60335-2-40:2024 + A11:2024 used in conjunction with EN 60335-1:2012 + A11:2014 + A13:2017 + A1:2019 + A14:2019 + A2:2019 + A15:2021 + A16:2023 EN 62233:2008
TRF template used	IECEE OD-2020-F2:2024, Ed. 2
Attachment Form No.	EU_GD_IEC60335_2_40X
Attachment Originator	Nemko Group AS
Master Attachment	2025-04-16
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Clause	Requirement + Test	Result - Remark	Verdict
	CENELEC COMMON MODIFICATIONS		
6.1	Delete “class 0” and “class 01”		N/A
7.1	Single-phase appliances to be connected to the supply mains: 230 V covered		P
	Multi-phase appliances to be connected to the supply mains: 400 V covered		N/A
7.12	The instructions include the substance of the following:		—
	- this appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved		P
	- children shall not play with the appliance		P
	- cleaning and user maintenance shall not be made by children without supervision		P

Clause	Requirement + Test	Result - Remark	Verdict
7.12.1	The installation instructions for appliances that are intended to be permanently connected to fixed wiring, and have a leakage current not exceeding 10 mA, state that the installation of a residual current device (RCD) having a rated residual operating current not exceeding 30 mA is advisable		P
	For appliances not accessible to the public and which are intended to be permanently connected to fixed wiring and which may have a leakage current exceeding 10 mA, the installation instructions specify the rating of the residual current device (RCD) to be installed		P
	For appliances not accessible to the general public the restrictions for the installation location are described in the installation instructions		P
8.1.1	Also test probe 18 of EN 61032 is applied		P
	The appliance being in every possible position during the test, except that		P
	appliances normally used on the floor and having a mass exceeding 40 kg are not tilted		P
	The force on the probe in the straight position is increased to 10 N when probe 18 is used		P
	When using test probe 18 the appliance is fully assembled as in normal use without any parts removed, and		P
	parts intended to be removed for user maintenance are also not removed		P
	Test probe 18 of EN 61032 is not applied to appliances not accessible to the general public		P
8.1.3	Instead of test probe B, test probe 18 and test probe 13, for appliances other than those of class II, test probe 41 of IEC 61032 is applied with a force not exceeding 1 N to live parts of visibly glowing heating elements, all poles of which can be disconnected by a single switching action		P
8.2	Compliance is checked by inspection and by applying the test probes of EN 61032 in accordance with the conditions specified in 8.1.1		P
	Test probe B and probe 18 of EN 61032 are applied to built-in appliances and fixed appliances only after installation		P
15.1.2	Appliances with an automatic cord reel tested with the cord in the most unfavourable position so that the reeling of the wet cord may affect electrical insulation during operation, the cord not being dried before reeling		N/A

Clause	Requirement + Test	Result - Remark	Verdict
20.2	For appliances having hazardous moving parts, due to their working function, e.g. the needle of a sewing machine, tools of kitchen machines or the blade of an electrical knife, full protection is not possible for performing their intended use		P
	When using a test probe similar to test probe B of EN 61032, having a circular stop face and applied with a force of 5N, the accessories and detachable covers are removed		P
	When using test probe 18 it is applied with a force of 2,5N on the appliance fully assembled		P
	Test probe 18 of EN 61032 is not applied to appliances not accessible to the general public		P
22.12	Other parts intended to be detached during use, maintenance or cleaning (e.g. batteries, battery covers, lids, attachments, steam nozzles) are not considered as parts providing a similar function as handles, knobs, grips, levers		N/A
22.17	The requirement is not applicable to built-in appliances		N/A
22.44	An appliance is child-appealing if one of the following criteria is present:		—
	- appliance decorated using faces, cartoon like characters, or similar images		N/A
	- appliance using shapes representing animals, characters, persons or scale models		N/A
	An appliance is child-appealing if more than one of the following criteria are present:		—
	- using non-functional light (functional light is e.g. illumination of an object or area, signal indicating status of an appliance)		N/A
	- using non-functional sound (e.g. music)		N/A
	- using non-functional movement		N/A
	If the appliance is child-appealing and		
	- has a mass less than 4 kg, and		N/A
	- is mounted or normally intended for use at a height less than 850 mm,		N/A
	the following conditions are met:		—
	- surface temperature rise requirements not exceeded		P
	- hazardous moving parts not accessible		P
	- live parts not accessible		P
	- liquid temperature requirement not exceeded,		P
	unless for vessels in which two independent and sequential actions are needed to access the liquid		P

Clause	Requirement + Test	Result - Remark	Verdict
	- the requirement of 22.12 is applicable for all accessible parts of the appliance		P
24.1	Components comply with the safety requirements specified in the relevant EN standards as far as they reasonably apply		P
	Motors are not required to comply with EN 60034-1, but tested as part of the appliance according to this standard		P
	Relays are tested as part of the appliance according to this standard		P
	Relays may be alternatively tested to EN 60730-1 and the additional requirements in EN 60335-1		P
	The requirements of Clause 29 of this standard apply between live parts of components and accessible parts of the appliance		P
	Components may comply with the requirements for clearances and creepage distances for functional insulation as specified in the relevant component standard		P
	The requirements of 30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections inside components		P
	Components that have not been tested and shown to comply with the EN standard for the relevant component are tested according to the requirements of 30.2 of this standard		P
	Components that have been tested and shown to comply with the resistance to fire requirements in the EN standard for the relevant component need not be retested provided that:		—
	- the severity specified in the component standard is not less than the severity specified in 30.2, and		P
	- the test report for the component states the values of t_e and t_i acc. to EN 60695-2-11		N/A
	If the above two conditions are not satisfied, the component is tested as part of the appliance		N/A
	Power electronic converter circuits are not required to comply with EN 62477-1, but tested as part of the appliance according to this standard		N/A
	Unless components have been tested and found to comply with the relevant EN standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		P
	For components mentioned in 24.1.1 to 24.1.9, no additional tests specified in the relevant EN standard for the component are necessary other than those specified in 24.1.1 to 24.1.9		P

Clause	Requirement + Test	Result - Remark	Verdict
	Components that have not been tested and found to comply with the relevant EN standard, and		N/A
	components that are not marked or not used in accordance with their marking,		N/A
	are tested in accordance with the conditions occurring in the appliance, the number of samples being that required by the relevant standard		N/A
	Lamp-holders and starter-holders that have not been tested and found to comply with the relevant EN standard are tested as a part of the appliance and additionally comply with the gauging and interchangeability requirements of the relevant EN standard under the conditions occurring in the appliance		N/A
	Where the relevant EN standard specifies these gauging and interchangeability requirements at elevated temperatures, the temperatures measured during the tests of Clause 11 are used		N/A
	There are no additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of EN 60320-1 and EN 60309, unless they are specifically mentioned in the text of this standard		P
	Plugs and socket-outlets and other connecting devices of interconnection cords are not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1, or		N/A
	with connectors and appliance inlets complying with the standard sheets of EN 60320-1, if		N/A
	direct supply to these parts from the supply mains gives rise to a hazard		N/A
	For plugs used in CENELEC countries Annex ZH applies		P
24.Z1	Type S2 and S3 capacitors according to EN 60252-1 are not required to undergo the testing as required by 30.2.2 and 30.2.3.1		N/A
25.1	Plugs and pins for insertion into socket outlets follow the relevant standards sheets in Annex ZH		P
25.7	Rubber sheathed cords (60245 IEC 53) are not suitable for appliances intended to be used outdoors, or		N/A
	when they are liable to be exposed to significant amount of ultraviolet radiation		N/A
25.25	Instead of IEC/TR 60083, dimensions of the pins and engagement face of plugs of appliances that are inserted into socket-outlets are in accordance with the dimensions of the relevant plug standard		N/A

Clause	Requirement + Test	Result - Remark	Verdict
	Common plugs and socket-outlets types in CENELEC countries as shown in Annex ZH		N/A
26.11	Conductors connected by soldering are not considered to be positioned or fixed so that reliance is not placed upon the soldering alone to maintain them in position,		N/A
	unless they are held in place near the terminals independently of the solder		N/A
29.3.Z1	Appliance constructed so that if there is a possibility of damaging the insulation during installation, the insulation withstands the scratch and penetration test of 21.2		P
32	Compliance regarding electromagnetic fields is checked according to EN 62233		P
Annex I, 19.1.101	The appliance is supplied at rated voltage and operated under normal operation with each of the fault conditions specified		P
	The duration of any of the tests is as specified in 19.7		P
ZA	ANNEX ZA (NORMATIVE) SPECIAL NATIONAL CONDITIONS (EN)		—
	Denmark, Sweden, Norway and Finland		—
7.12.8	The maximum inlet water pressure is at least 1,0 MPa		N/A
	Norway		—
19.5	The test is also applicable to appliances intended to be permanently connected to fixed wiring		N/A
	Norway		—
22.2	The second paragraph of this subclause, dealing with single-phase, permanently connected class I appliances having heating elements, is not applicable due to the supply system		N/A
	Denmark		—
22.47	The maximum inlet water pressure is at least 1,0 MPa		N/A
	Ireland, United Kingdom and Cyprus		—

Clause	Requirement + Test	Result - Remark	Verdict
25.8	In the table, the line >10 A and ≤16 A is replaced with:		—
	> 10 and ≤ 13 1,25 (1,0) ^b		N/A
	> 13 and ≤ 16 1,5 (1,0) ^b		N/A
ZB	ANNEX ZB (INFORMATIVE) A-DEVIATIONS		—
	Ireland		—
25.1 and 25.25	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs complying with I.S. 401:1997, or equivalent, to be fitted to domestic appliances		N/A
	United Kingdom		—
25.1 and 25.25	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs to BS 1363 to be fitted to domestic appliances.		N/A
	It also allows plugs to BS 4573 and EN 50075 to be fitted to shavers and toothbrushes		N/A
ZC	ANNEX ZC (NORMATIVE) NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS		—
	A list of documents referred to in the text of this standard in such a way that some or all of their content constitutes requirements of this document		P
ZD	ANNEX ZD (INFORMATIVE) IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS		—
	List of IEC and CENELEC code designations for flexible cords		N/A
ZE	ANNEX ZE (NORMATIVE) SPECIFIC ADDITIONAL REQUIREMENTS FOR APPLIANCES AND MACHINES WITH MOTORIZED PARTS AND INTENDED FOR COMMERCIAL USE		—
5.7	The tests are carried out in a draught-free location at an ambient temperature of 20 °C ± 5 °C		N/A
	The tests and test conditions of Clauses 10 and 11 are carried out under the most severe operating conditions within the operating temperature range specified by the manufacturer		N/A

Clause	Requirement + Test	Result - Remark	Verdict
7.1	Business name and full address of the manufacturer and, where applicable, his authorized representative		N/A
	Model or type reference		N/A
	Serial number, if any		N/A
	Production year		N/A
	Designation of the appliance		N/A
7.12	Instructions provided with the appliance so that the appliance can be used safely		N/A
	The instructions contain at least the following information:		—
	- the business name and full address of the manufacturer and, where applicable, his authorized representative		N/A
	- model or type reference of the appliance as marked on the appliance itself, except for the serial number		N/A
	- the designation of the appliance together with its explanation in case it is given by a combination of letters and/or numbers		N/A
	- the general description of the appliance, when needed due to the complexity of the appliance		N/A
	- specific precautions required during installation, operation, adjusting, user maintenance, cleaning, repairing or moving		N/A
	- when needed drawings, diagrams, descriptions and explanations necessary for the safe use and user maintenance of the appliance		N/A
	- the possible reasonably foreseeable misuse and, whenever relevant, a warning against the effects it may have on the safe use of the appliance		N/A
	The words "Original instructions" appear on the language version(s) verified by the manufacturer or by the authorized representative		N/A
	When a translation of the original instructions has been provided by a person introducing the appliance on the market; the meaning of the sentence "Translation of the original instructions" appear in the relevant instructions delivered with the appliance		N/A
	The instructions for maintenance/service to be done by specialized personnel, mandated by the manufacturer or the authorized representative may be supplied in only one Community language which the specialized personnel understand		N/A

Clause	Requirement + Test	Result - Remark	Verdict
	The instructions indicate the type and frequency of inspections and maintenance required for safe operation including the preventive maintenance measures		N/A
7.12.ZE1	If needed for specific appliances, the following information to be given:		—
	- on use, transportation, assembly, dismantling when out of service, testing or foreseeable breakdowns, if these operations have consequences on stability of the appliance in order to avoid overturning, falling or uncontrolled movements of the appliance or of its component parts		N/A
	- on how to maintain adequate mechanical stability when in use, during transportation, assembly, dismantling, scrapping and any other action involving the appliance		N/A
	- on the protective measures to be taken by the user, including, where appropriate, the personal protective equipment to be provided		N/A
	- on the operating method to be followed in the event of accident or breakdown; if a blockage is likely to occur the operating method to safely unblock the appliance		N/A
	- on the specifications on the spare parts to be used, when these affect the health and safety of the operator		N/A
	- on airborne noise emissions, determined and declared in accordance with Annex ZAB, which includes:		—
	- the A-weighted emission sound pressure level at workstations, where this exceeds 70 dB(A)		N/A
	- If the A-weighted emission sound pressure level is ≤ 70 dB, no value needs to be given, but the instructions state that the A-weighted emission sound pressure level is ≤ 70 dB		N/A
	- the A-weighted sound power level emitted by the machinery, where the A-weighted emission sound pressure level at workstations exceeds 80 dB(A).....:		N/A
7.12.ZE2	The instructions include a warning to disconnect the appliance from its power source during service and when replacing parts		N/A
	If the removal of the plug is foreseen, it is clearly indicated that the removal of the plug is such that an operator can check from any of the points to which he has access that the plug remains removed		N/A

Clause	Requirement + Test	Result - Remark	Verdict
	If this is not possible, due to the construction of the appliance or its installation, a disconnection with a locking system in the isolated position is provided		N/A
19.11.4	Delete the 5th paragraph beginning with "Components"		N/A
19.11.4.8	The appliance continues to operate, without causing any hazard to the user, from the same point in its operating cycle at which the voltage fluctuation occurred, or		N/A
	a manual operation is required to restart it		—
20.1	Appliances and their components and fittings have adequate mechanical stability during transportation, assembly, dismantling and any other action involving the appliance		N/A
20.2	Dangerous moving transmission parts safeguarded either by design or guards		N/A
	When guards are used, they are fixed guards, interlocking movable guards or protective devices		N/A
	Moving parts directly involved in the function of the appliance which cannot be made completely inaccessible fitted with:		—
	- fixed guards or interlocking movable guards preventing access to those sections of the parts that are not used in the work, and		N/A
	- adjustable guards restricting access to those sections of the moving parts where access is necessary		N/A
	Interlocking movable guards used where frequent access is required		N/A
21.1	Appliances and their components and fittings have adequate mechanical strength and is constructed to withstand such rough handling that may be expected in normal use, during transportation, assembly, dismantling, scrapping and any other action involving the appliance		N/A
22.ZE.1	For appliances provided with a seat, the seat gives adequate stability		N/A
	The distance between the seat and the control devices capable of being adapted to the operator		N/A
22.ZE.2	For appliances provided with separate devices for the start and the stop functions, the stop function is unambiguously identifiable and does always override the start function		N/A
	For appliances provided with one device performing the start and the stop function, the stop function is unambiguously identifiable and does always override the start function		N/A

Clause	Requirement + Test	Result - Remark	Verdict
22.ZE.3	Appliances designed in such a way that incorrect mounting is avoided, if this can lead to an unsafe situation		N/A
	If this is not possible, information on the correct mounting is given directly on the part and/or the enclosure		N/A
22.ZE.4	Where the weight, size or shape prevents appliances from being moved manually, they are fitted with attachments for lifting gear, or		N/A
	so designed that they can be fitted with such attachments, or		N/A
	be shaped in such a way that standard lifting gear can easily be used		N/A
	Appliances to be moved manually are constructed or equipped so that they can be moved easily and safely		N/A
22.ZE.5	The fixing systems of fixed guards which prevent access to hazardous moving transmission parts only removable with the use of tools		N/A
	If such guards have to be removed by the user for routine cleaning or maintenance their fixing systems remain attached to the fixed guards or to the machine after removal		N/A
	Where possible, guards are incapable of remaining in place without their fixings		N/A
	This does not apply if, after removal of the screws, or if the component is incorrectly repositioned, the appliance becomes inoperative		N/A
	Movable guards are interlocked		N/A
	The interlocking devices prevent the start of hazardous appliance functions until the guards are fixed in their position, and give a stop command whenever they are no longer closed		N/A
	Where it is possible for an operator to reach the danger zone before the risk due to hazardous appliance functions has ceased, movable guards associated with a guard locking device in addition to an interlocking device that:		—
	- prevents the start of hazardous appliance functions until the guard is closed and locked, and		N/A
	- keeps the guard closed and locked until the risk of injury from the hazardous appliance functions has ceased		N/A
	Interlocking movable guards remain attached to the appliance when open, and		N/A
	they are designed and constructed in such a way that they can be adjusted only by means of an intentional action		N/A

Clause	Requirement + Test	Result - Remark	Verdict
22.ZE.6	Interlocking movable guards designed in such a way that the absence or failure of one of their components prevents starting or stops the hazardous appliance functions		N/A
	The guard is opened to the extent needed to cause the interlocking to operate and is then closed. This operation is carried out for 5 000 cycles at a rate of 5 cycles per min.		N/A
	After this test any defect that may be expected in normal use is applied to the interlock system, including interruption of the supply, only one defect being simulated at a time		N/A
	After these tests the interlock system is fit for further use		N/A
22.ZE.7	Adjustable guards restricting access to areas of the moving parts strictly necessary for the work are:		—
	- adjustable manually or automatically, depending on the type of work involved, and		N/A
	- readily adjustable without the use of tools		N/A
22.ZE.8	In case of interruption, re-establishment after an interruption or fluctuation in whatever manner of the power supply, the appliance does not restart		N/A
	However, automatic restarting of the operation is allowed if the appliance may continue to operate, without causing any hazard to the user, from the same point in its operating cycle at which the voltage interruption or fluctuation occurred		N/A
22.ZE.9	Appliances fitted with means to isolate them from all energy sources		N/A
	Such isolators are clearly identified, and		N/A
	they are capable of being locked if reconnection endanger persons		N/A
	After the energy source is disconnected, it is possible to dissipate any energy remaining or stored in the circuits of the appliance without risk to persons		N/A
22.46	Delete the last sentence of the addition		N/A
22.ZE.10	Noise reduction is an integral part of the design process and is achieved by particularly applying measures at source to control noise, see for example EN ISO 11688-1:2009. The success of the applied noise reduction measures is assessed based on the actual noise emission values, determined according to Annex ZAB, in relation to other machines of the same type with comparable non-acoustical technical data		N/A
	Main sources of noise for appliances covered by this document:		N/A

Clause	Requirement + Test	Result - Remark	Verdict
	- fans and airflow outlets causing direct generated airborne noise,		N/A
	- indirect generated airborne noise by radiated structure borne sound in fan blades and housings as well as in gearbox housings, pumps or metal casing plates		N/A
ZF	ANNEX ZF (INFORMATIVE) CRITERIA APPLIED FOR THE ALLOCATION OF PRODUCTS COVERED BY STANDARDS IN THE EN 60335 SERIES UNDER LVD OR MD		—
	List of standards under CENELEC/TC61 with the allocation under the LVD (Low Voltage Directive) or the MD (Machinery Directive)		P
ZG	ANNEX ZG (NORMATIVE) UV APPLIANCES		—
	The following modifications to this standard apply to appliances having UV emitters		N/A
	This annex is not applicable to appliances covered by the scopes of IEC 60335-2-27, IEC 60335-2-59 or IEC 60335-2-109		N/A
7.12.ZG	The instructions for appliances incorporating UVC emitters include the substance of the following: WARNING — This appliance contains a UV emitter. Do not stare at the light source		N/A
32	For appliances incorporating UV emitters the manufacturer delivers a declaration providing evidence that the plastic material exposed to the radiation is UV resistant		N/A
ZH	ANNEX ZH (INFORMATIVE) Common plug and socket-outlet types in CENELEC countries		—
	In general, supply cords of single-phase appliances having a rated current not exceeding 16 A are fitted with a plug complying with the following standard sheets:		—
	- for class I appliances or class II appliances with functional earth, standard sheet EU2, EU3 or EU4		N/A
	- for class II appliances, standard sheet EU5, EU6 or EU7		N/A
	There are exemptions or differences in certain CENELEC countries		N/A
ZI	ANNEX ZI (INFORMATIVE) Information on the application of A11:2014 to EN 60335-1:2012 CENELEC CLC/TC 61(SEC)2096A		—

Clause	Requirement + Test	Result - Remark	Verdict
	Clarification of the application of parts 2 in conjunction with the 2002 or 2012 version of EN 60335-1		P
ZAA	ANNEX ZAA (INFORMATIVE) THE RELEVENCE OF THE PRESSURE EQUIPMENT DIRECTIVE		—
	Refrigerating systems having a pressure greater than 0,05 MPa are considered to be assemblies falling within the scope of the Pressure Equipment Directive, 2014/68/EU. However, according to Article 1, item (f) of the Directive, equipment classified no higher than category I and covered by the Low Voltage Directive 2014/35/EU or the Machinery Directive 2006/42/EC is excluded from its scope		N/A
	According to guideline 1/39 of the Directive, this exclusion applies to both components and assemblies (refrigeration circuits). This applies to appliances containing vessels (e.g. compressors, receivers) or piping with limits in accordance with the following:		—
	Vessels		—
	- dangerous fluids (Annex II, Table 1)		—
	- volume not exceeding 1 l, or		N/A
	- pressure PS x volume not exceeding 5 MPa l		N/A
	- non-dangerous fluids (Annex II, Table 2)		—
	- volume not exceeding 1 l, or		N/A
	- pressure PS x volume not exceeding 20 MPa l		N/A
	Piping		—
	- dangerous fluids (Annex II, Table 6)		—
	- nominal diameter DN not exceeding 25, or		N/A
	- pressure PS not exceeding 1 MPa and nominal diameter DN not exceeding 100, or		N/A
	- pressure PS exceeding 1 MPa and pressure x nominal diameter DN not exceeding 100 MPa		N/A
	- non-dangerous fluids (Annex II, Table 7)		—
	- nominal diameter DN not exceeding 100, or		N/A
	- pressure PS x nominal diameter DN not exceeding 350 MPa		N/A
	For other components, the most onerous limit of the two applies		N/A

Clause	Requirement + Test	Result - Remark	Verdict
	The volume is the internal volume of the vessel and includes the volume of pipework up to the first connection. It excludes the volume of fixed internal parts.		N/A
	The pressure PS is the maximum allowable pressure the vessel or piping is exposed to, as specified by the manufacturer of the appliance		N/A
	Nominal size (DN)' means a numerical designation of size which is common to all components in a piping system other than components indicated by outside diameters or by thread size. It is a convenient round number for reference purposes and is only loosely related to manufacturing dimensions. The nominal size is designated by DN followed by a number. In the absence of a DN designation, it shall be assumed that DN corresponds to the internal diameter (for circular products) or the comparative diameter determined from the equivalent flow section (for non-circular products)		N/A
	If any component exceeds the limits given above, the appliance is expected to comply with the Directive. The technical requirements are given in Annex I and the conformity assessment tables and procedures in Annexes II and III of the Directive		N/A
	Commonly used refrigerants, classified as dangerous fluids of Fluid Group 1 in the Directive, are listed in Table ZAA.1.		N/A
	Commonly used refrigerants, classified as non-dangerous fluids of Fluid Group 2 in the Directive, are listed in Table ZAA.2.		N/A
ZAB	ANNEX ZAB (NORMATIVE) NOISE TEST CODE FOR APPLIANCES COVERED BY ANNEX ZE		—
ZAB.1	Emission sound pressure level determination		—
	The A-weighted emission sound pressure level is determined in accordance with		—
	- EN ISO 11201:2010, grade 2 or		N/A
	- EN ISO 11202:2010, grade 2 or		N/A

Clause	Requirement + Test	Result - Remark	Verdict
	If it is required according to 7.12.ZE1 to determine the A-weighted sound power level the A-weighted emission sound pressure level shall be calculated according to EN ISO 11203:2009. In such a case 6.2.3 d) of EN ISO 11203:2009 is applied with the surface S being the measurement surface used for the sound power level determination. If the sound power level determination is based on a measurement method requiring a reverberant sound field, the surface S to define Q, is a parallelepiped measurement surface at a distance of 1 m from the reference box enclosing the source and assuming only one reflecting surface i.e the floor		N/A
ZAB.2	Sound power level determination		—
	If the determination of the A-weighted sound power level is required according to 7.12.ZE1 it is determined in accordance with EN 12102-1:2022 or EN 12102-2:2019, whichever is applicable. The preferred measurements methods are of grade 2. Only in cases where such a measurement method cannot be applied a grade 3 measurement method is used for determining the A-weighted sound power level. In that case the reasons are explicitly mentioned		N/A
ZAB.3	Operation conditions		—
	The operating conditions defined in EN 12102-1:2022 or EN 12102-2:2019, whichever is applicable, apply		N/A
	The operating conditions are identical for the determination of both the A-weighted sound power level and the A-weighted emission sound pressure level		N/A
ZAB.4	Installation and mounting conditions		—
	The Installation and mounting conditions defined in EN 12102-1:2022 or EN 12102-2:2019, whichever is applicable, apply. They are identical for the determination of both the A-weighted sound power level and the A-weighted emission sound pressure level		N/A
ZAB.5	Measurement uncertainties		—
	The total measurement uncertainties of the noise emission values determined according to this document are depending on the standard deviation of reproducibility σ_{R0} given by the applied basic noise emission measurement method and the uncertainty associated with the instability of the operating and mounting conditions σ_{omc}		N/A

Clause	Requirement + Test	Result - Remark	Verdict
	<p>The resulting total uncertainty is then calculated from:</p> $\sigma_{tot} = \sqrt{(\sigma_{R0}^2 + \sigma_{omc}^2)}$ <p>(EN IEC 60335-2-40)</p>		N/A
	<p>The upper bound value of σ_{R0} is 1,5 dB for grade-2-measurement methods, and 3 dB for grade-3-methods, assuming noise sources which emit sound without significant tones. These values apply for both the determined A-weighted emission sound pressure level and the A-weighted sound power level</p>		N/A
	<p>The expanded measurement uncertainty U, in decibels, is calculated from: $U = k \cdot \sigma_{tot}$ where k is the coverage factor</p>		N/A
	<p>The expanded measurement uncertainty U as described in this European Standard does not include the standard deviation of production which is used in EN ISO 4871:2009 for the purpose of making a noise emission declaration for batches of machines</p>		N/A
	<p>In the case of preparing a noise emission declaration for batches of machines σ_{tot} is replaced by σ_t, the total standard deviation defined in EN ISO 4871:2009. σ_t can be calculated by using the equation</p> $\sigma_t = \sqrt{\sigma_{R0}^2 + \sigma_{omc}^2 + \sigma_P^2} = \sqrt{\sigma_{tot}^2 + \sigma_P^2}$ <p>with σ_P the standard deviation of production</p>		N/A
ZAB.6	Information to be recorded		—
	<p>The information to be recorded covers all the technical requirements of this noise test code. Any deviations from this noise test code or from the basic standards upon which it is based are to be recorded together with the technical justification for such deviations</p>		N/A
ZAB.7	Information to be reported		—
	The information to be given in the test report includes:		—
	- the data required by the manufacturer for inclusion in the noise emission declaration		N/A
	- the data required by the user to verify the declared values		N/A
	Thus, the following information is included:		—
	- reference to the noise test code and the basic noise emission standards used		N/A

Clause	Requirement + Test	Result - Remark	Verdict
	- description of the installation, mounting and operation conditions used		N/A
	- location of specified positions		N/A
	- the noise emission values obtained		N/A
	The test report states that all requirements of the noise test code have been fulfilled, or, if this is not the case, it shall identify any unfulfilled requirements		N/A
	Deviations from the requirements are stated and a technical justification for these deviations is given		N/A
ZAB.8	Declaration and verification of noise emission values		—
	The declaration of noise emission values is a two-number declaration according to EN ISO 4871:2009. It includes the A-weighted emission sound pressure level L_{pA} respectively if additionally required according to 7.12.ZE1 the A-weighted sound power level L_{WA} including the associated uncertainties K (K_{pA} and K_{WA})		N/A
	The noise emission declaration states that the noise emission values have been obtained according to this noise test code		N/A
	Any deviations from this noise test code, from EN 12102-1:2022 or EN 12102-2:2019 or from the basic standards upon which they are based are clearly indicated		N/A
	Additional noise emission values can also be given in the declaration		N/A
	If undertaken, verification of the noise emission values is conducted according to EN ISO 4871:2009, using the same mounting and operating conditions as those used for the initial determination		N/A
ZZA	ANNEX ZZA (INFORMATIVE) RELATIONSHIP BETWEEN THIS EUROPEAN STANDARD AND THE SAFETY OBJECTIVES OF DIRECTIVE 2014/35/EU [2014 OJ L96] AIMED TO BE COVERED		—
	This standard provides one means of conforming to safety objectives of Directive 2014/35/EU		P
	When cited in the Official Journal under that Directive, compliance with the normative clauses of this standard given in Table ZZA.1 confers a presumption of conformity with the safety objectives of that Directive and associated EFTA regulations		P

Clause	Requirement + Test	Result - Remark	Verdict
	Compliance with this Part 1 when used together with the relevant Part 2 provides one means of conformity with the safety objectives		P
ZZB	ANNEX ZZB (INFORMATIVE) RELATIONSHIP BETWEEN THIS EUROPEAN STANDARD AND THE ESSENTIAL REQUIREMENTS OF DIRECTIVE 2006/42/EC AIMED TO BE COVERED		—
	This standard provides one means of conforming to essential requirements of EU Directive 2006/42/EC		N/A
	When cited in the Official Journal under that Directive, compliance with the normative clauses of this standard given in Table ZZB.1 confers a presumption of conformity with the essential requirements of that Directive and associated EFTA regulations		N/A
	Compliance with this Part 1 when used together with the relevant Part 2 provides one means of conformity with the essential health and safety requirements		N/A
	ANNEX EN 62233:2008 + AC:2008 EMF- ELECTROMAGNETICS FIELDS		
	The tested product also complies with the requirements of EN 62233:2008		—
	Limit 100%	Measured max. :3,1 %	P

--- End of Attachment 2 ---