Intertek ETL SEMKO Korea Ltd.
#1103, Ace Techno Tower III, 197-48,
Guro-Dong, Guro-Gu, Seoul 152-779, Korea
Tel: +82-2-567-7474 / Fax: +82-2-567-8482

Test Verification of Conformity

On the basis of the referenced test report(s), the sample(s) of the below product has been found to comply with the relevant harmonized standard(s) to the directive(s) listed on this verification at the time the tests were carried out. The manufacturer may indicate compliance to said directive(s) by signing a DoC himself and applying the CE-marking to products identical to the tested sample(s). In addition, the manufacturer shall file and keep the documentation according to the rules of the applicable directive(s) and shall consider changes of the standard(s) if relevant. Additional requirements may be applicable such as additional directives or local laws.

Verification Number	:	KRV090041
Applicant Name & Address	:	DONGWOO INDUSTRY 552 Hwasim-ri, Soyang-meon, Wanju-gun, Jeollabukdo, 565-844, R.O.Korea
Manufacturer Name & Address	:	Same as applicant
Product(s) Tested	:	Duct Fan
Ratings and principal characteristics	:	220-230 V, 50-60 Hz, 13 W, Class I, Tropical climate: T, IPX2
Model(s)	:	AIRLUKS 250, DWV-11DRB
Brand name	:	Dori Dori, AIRLUKS
Verification Issuing Office Name & Address	:	Intertek ETL SEMKO Korea Ltd. #1103, Ace Techno Tower III, 197-48, Guro-Dong, Guro-Gu, Seoul 152-779 Korea

Relevant Standard(s) / Specification(s):	Directive(s):	Test report Number(s):	Issued by:	Date:
EN 60 335-2-80: 2003 + A1: 2004 EN 60 335-1: 2002 + A11: 2004 + A1: 2004 + Corr.1: 2007 + A12: 2006 + A2: 2006 + A13: 2008	Low voltage directive : 2006/95/EC	KR09070036-2	Intertek ETL SEMKO Korea Ltd.	Sep. 22, 2009
EN 62 233: 2008		KR09070036-4	Intertek ETL SEMKO Korea Ltd.	Sep. 09, 2009
EN 55 014-1: 2006 EN 55 014-2: 1997 + A1:2001, Category I EN 61 000-3-2: 2006 EN 61 000-3-3: 1995 + A1: 2001 + A2: 2005	EMC directive: 2004/108/EC	E099R-021	ONETECH Corp.	Sep. 09, 2009

NOTE 1: This verification is part of the full test report(s) and should be read in conjunction with it.
NOTE 2: This verification supersedes all previous verifications with the noted Verification/Report number(s) dated before this verification issuance.

for

Signature
Name: Alan Kim
Position: General Manager
Date: Sep. 22, 2009

Test Report

IEC / EN 60 335 - 2 - 80

AIRLUKS 250

Test Report issued under the responsibility of

Intertek

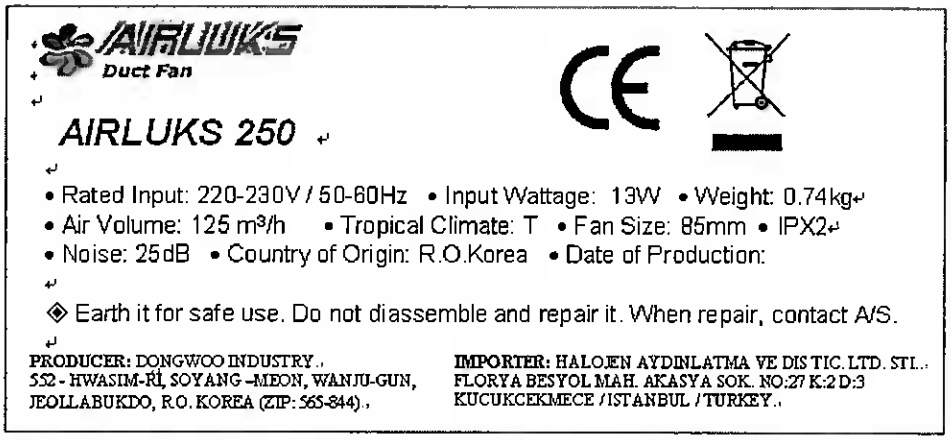
TEST REPORT
IEC/EN 60 335-2-80
Safety of household and similar electrical appliances
Part II : particular requirements for fans

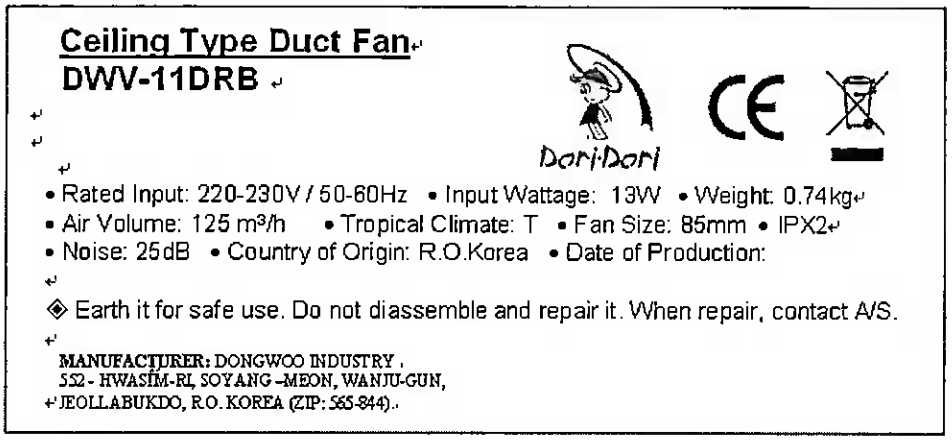
Report Reference No. ..... :	KR09070036-2
Tested by (name + signature) ..... :	Richi Kim
Witnessed by (name + signature) .... :	N/A
Supervised by (name + signature) ... :	N/A
Approved by (name + signature) ..... :	Roy Lee
Date of issue ..... :	September 22, 2009
Testing Laboratory ..... :	Intertek ETL SEMKO Korea Ltd.
Address ..... :	#1103, Ace Techno Tower III, 197-48, Guro-Dong, Guro-Gu, Seoul 152-779 Korea
Testing location/ procedure ..... :	CBTL☒ RMT☐ SMT☐ WMT☐ TMP☐
Testing location/ address ..... :	Same as above
Applicant's name ..... :	DONGWOO INDUSTRY
Address ..... :	552 Hwasim-ri, Soyang-meon, Wanju- gun, Jeollabukdo, 565-844, R.O.Korea
Test specification:	
Standard ..... :	☐ IEC 60 335-2-80: 2002 (2nd Edition) + A1: 2004 + A2: 2008 ☐ IEC 60 335- 1: 2001 (4th Edition) + Corr.1: 2002 + A1: 2004 + A2: 2006 + Corr.1: 2006 ☒ EN 60 335-2-80: 2003 (2nd Edition) + A1: 2004 ☒ EN 60 335-1: 2002 (4th Edition) + A11: 2004 + A1: 2004 + Corr.1: 2007 + A12: 2006 + A2: 2006 + + A13: 2008 ☒ EN 62 233: 2008
Test procedure ..... :	CE_LVD
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	TTRF_IECEN60335_2_80A
Test Report Form(s) Originator ..... :	KEMA Quality B.V.
Master TRF ..... :	2005-11-01

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

Test item description .....:	Duct Fan
Trade Mark .....:	Dori Dori , AIRLUKS
Manufacturer.....:	Same as applicant
Address.....:	Same as applicant
Model/Type reference.....:	AIRLUKS 250, DWV-11DRB
Ratings.....:	220–230 V, 50–60 Hz, 13 W, Class I, Tropical climate: T, IPX2

Copy of marking plate and summary of test results (information/comments):





Summary of testing:

The tested sample is complied with the standard EN 60 335-2- 80: 2003 (2nd Edition)+A1: 2004 in conjunction with EN 60 335-1: 2002 (4th Edition)+ A11: 2004+A1: 2004+ Corr.1: 2007 +A12: 2006+A2: 2006 + A13: 2008 and EN 62 233: 2008

Test item particulars ..... :	
Classification of installation and use ..... :	Class I, built-in appliance and indoor use only
Supply Connection ..... :	Type Y attachment
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 ..... :	August 20, 2009
Date (s) of performance of tests ..... :	August 24 to September 14, 2009
Product verification per IECEE 02, Clause 6.2.5:	
Steps taken by the NCB to ensure that the products from all the factories stated in the CB Test Certificate are equal..... :	N/A

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.

Throughout this report a point is used as the decimal separator.
When determining the test conclusion, the Measurement Uncertainty of test has been considered.

EN 60 335-1/A12: 2006 and IEC/EN 60 335-1/A2: 2006 & EN 60335-1/A13: 2008 & IEC 60335-2-80/A2: 2008 & EN 62 233: 2008 are covered by the appendix to TTRF IECEN 60335_2_80A.

General product information / Additional remarks :

- This appliance is duct fan and indoor use only.
- The model DWV-11DRB is same as model AIRLUKS 250 except for only model name.

The basic part of this covers the assessment of the general IEC requirements.

The APPENDIX 1 includes the assessment of all group differences and national deviations to complete the assessment for CENELEC countries (according the last valid edition of the CB-Bulletin and the relevant EN standards).

The APPENDIX 2 includes the requirements for EN 60 335-1/A12: 2006

The APPENDIX 3 includes the requirements for IEC/EN 60 335-1/A2: 2006 and EN 62 233: 2008

The APPENDIX 4 includes the requirements for EN 60 335-1/A13: 2008

The APPENDIX 5 includes the requirements for IEC 60 335-2-80/A2: 2008

The APPENDIX 6 includes all tables with the test results and photos of the appliances.

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
5	**GENERAL CONDITIONS FOR THE TESTS**		
	Tests performed according to cl.5, e.g. nature of supply, sequence of testing, etc.		P
5.7	Fans intended to be used in tropical climates, tests of clauses 10, 11 and 13 are carried out at 40 ℃ ± 2 ℃ (IEC 60 335-2-80 : 2002)		P
	Fans marked with an ambient operating temperature, tests of clauses 10, 11 and 13 are carried out at the marked value ± 2 ℃ (IEC 60 335-2-80: 2002 /A1)		N/A
6	**CLASSIFICATION**		
6.1	Protection against electric shock: Class 0, 0I, I, II or III:	Class I	P
6.2	Duct fans shall be at least IPX2 (IEC 60 335-2-80: 2002)		P
6.101	Classification to climatic conditions : temperate climates, tropical climates (IEC 60 335-2-80)	tropical climate: T	P
7	**MARKING AND INSTRUCTIONS**		
7.1	Rated voltage or voltage range (V):	220-230 V	P
	Single-phase appliances: 230 V covered: (EN 60 335-1: 2002)		P
	Multi-phase appliance: 400 V covered: (EN 60 335-1: 2002)		N/A
	Nature of supply:		N/A
	Rated frequency (Hz):	50-60 Hz	P
	Rated power input (W)::	13 W	P
	Rated current (A) :		N/A
	Manufacturer's or responsible vendor's name, trademark or identification mark:	Dori Dori, AIRLUKS	P
	Model or type reference:	DWV-11DRB & AIRLUKS 250	P
	Symbol 5172 of IEC 60 417, for Class II appliances		N/A
	IP number, other than IPX0:	IPX2	P
	tropical climates marked with letter T (IEC 60 335-2-80: 2002)		P

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	Fans operating at local temperature exceeding 40 ℃ marked with ambient operating temperature (IEC 60 335-2-80: 2002 /A1)		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, the voltage setting is clearly discernible		N/A
7.5	Appliances with more than one rated voltage or one or more rated voltage ranges, marked with rated input or rated current for each rated voltage or range, unless		N/A
	the power input is related to the mean value of the rated voltage range	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		N/A
7.6	Correct symbols used		P
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply		N/A
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		
	- marking of terminals exclusively for the neutral conductor (N)		N/A
	- marking of protective earthing terminals (symbol 5019 of IEC 60 417)		P
	- marking not placed on removable parts		P
7.9	Marking or placing of switches which may cause a hazard	No switch	N/A
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means:	No switch	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		N/A
7.12	Instructions for safe use provided		P

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
7.12.1	Sufficient details for installation supplied		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		N/A
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions stating that the fixed wiring must be protected		N/A
7.12.4	Instructions for built-in appliances:		
	- dimensions of space		P
	- dimensions and position of supporting means		P
	- distances between parts and surrounding structure		P
	- dimensions of ventilation openings and arrangement		P
	- connection to supply mains and interconnection of separate components		P
	- plug accessible after installation, 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
	Replacement cord instructions, type Z attachment		N/A
7.12.6	Instructions for heating appliances incorporating a non-self-resetting thermal cut-out that is reset by disconnection the supply mains contains the warning (IEC 60 335-1/A1)	No heating appliance	N/A
7.12.7	The instructions for fixed appliances shall state how the appliance is to be fixed to its support (IEC 60 335-1/A1)		P
7.12.8	The instructions for appliances connected to the water mains shall state:		N/A
	- max. inlet water pressure - min. inlet water pressure (if necessary for correct operation (IEC 60 335-1/A1)		N/A
7.13	Instructions and other texts in an official language		P
7.14	Marking clearly legible and durable	In English	P
7.15	Marking on a main part		P

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	Marking clearly discernible from the outside, if necessary after removal of a cover		P
	For portable appliances, cover can be removed or opened without a tool		N/A
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		N/A
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions	Built-in appliance	N/A
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading		N/A
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N/A
8	**PROTECTION AGAINST ACCESS TO LIVE PARTS**		
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	Requirement applies for all positions, detachable parts removed		P
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N/A
	Use of test probe B of IEC 61 032: no contact with live parts		P
8.1.2	Use of test probe 13 of IEC 61 032 through openings in class 0 appliances and class II appliances/ constructions: no contact with live parts	class I	P
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		N/A
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61 032: no contact with live parts of visible glowing heating elements	No visible glowing heating ele ments	N/A
8.1.4	Accessible part not considered live if:		
	- safety extra-low a.c. voltage: peak value not exceeding 42.4 V		N/A
	- safety extra-low d.c. voltage: not exceeding 42.4 V		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	- or separated from live parts by protective impedance		N/A
	If protective impedance: d.c. current not exceeding 2 Ma, and		N/A
	a.c. peak value not exceeding 0.7 Ma		N/A
	- for peak values over 42.4 V up to and including 450 V, capacitance not exceeding 0.1 µF		N/A
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 µC		N/A
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		
	- built-in appliances		P
	- fixed appliances		N/A
	- appliances delivered in separate units		N/A
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only		N/A
	Only possible to touch parts separated from live parts by double or reinforced insulation		N/A
	Removal of detachable parts after user maintenance, basic insulation may be touched provided that wiring is electrically equivalent with IEC 60 227 or IEC 60 245 (IEC 60 335-2-80: 2002/A1)		N/A
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	(see appended table)	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		N/A
11	**HEATING**		
11.1	No excessive temperatures in normal use		P

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
11.2	Placing and mounting of appliance as described		P
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless		P
	the windings makes it difficult to make the necessary connections		N/A
11.4	Heating appliances operated under normal operation at 1.15 times rated power input :		N/A
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage:	220 V X 0.94 = 206.8 V 230 V X 1.06 = 243.8 V	P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage:		N/A
11.7	Operation duration corresponding to the most unfavourable conditions of normal use		P
11.8	Temperature rises not exceeding values in table 3	(see appended tables)	P
	Protective devices do not operate		P
	Sealing compound does not flow out		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 rated power input:		N/A
	Motor-operated appliances and combined appliances supplied at 1.06 times rated voltage:		P
	Protective impedance and radio interference filters disconnected before carrying out the tests		N/A
13.2	Leakage current measured by means of the circuit described in figure 4 of IEC 60 990		P
	Leakage current measurements	(see appended table)	P
13.3	Electric strength tests according to table 4	(see appended table)	P
	No breakdown during the tests		P

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict

14	**TRANSIENT OVERVOLTAGES**		
	Appliances withstand the transient overvoltages to which they may be subjected		N/A
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6		N/A
	No flashover during the test, unless of functional insulation		N/A
	In case of flashover of functional insulation, the appliance complies with clause 19 with the clearance short circuited		N/A

15	**MOISTURE RESISTANCE**		
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance	IPX2	P
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		P
	No trace of water on insulation which can result in a reduction of clearances and creepage distances below values specified in clause 29		P
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60 529:		P
	Water valves containing live parts are subjected to the tests for IPX7 appliances (IEC 60 335-1/A1)		N/A
	The outer part of fans to be installed in the external structure is subjected to subclause 14.2.4(a) of IEC 60 529. (IEC 60 335-2-80: 2002/A1)		N/A
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test	No hand-held appliance	N/A
	Built-in appliances installed according to the instructions		P
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		N/A
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		N/A
	For IPX3 appliances, the base of wall mounted appliances is placed at the same level as the pivot axis of the oscillating tube		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	For IPX4 appliances, the horizontal centre line of the appliance is aligned with the pivot axis of the oscillating tube		N/A
	For IPX4 appliances normally fixed to a ceiling are mounted underneath a horizontal unperforated support that prevents water spraying onto the top surface (IEC 60 335-1/A1)		N/A
	However, for appliances normally used on the floor or table, the movement is limited to two times 90° for a period of 5 min, the support being placed at the level of the pivot axis of the oscillating tube		N/A
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Detachable parts tested as specified		N/A
15.2	Spillage of liquid does not affect the electrical insulation		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Appliances incorporating an appliance inlet tested with or without an connector, whichever is most unfavourable		N/A
	Detachable parts removed		N/A
	Overfilling test with additional amount of water, over a period of 1 min (l):		N/A
	The appliance withstands the electric strength test of 16.3		N/A
	No trace of water on insulation that can result in a reduction of clearances and creepage distances below values specified in clause 29		N/A
15.3	Appliances proof against humid conditions		P
	Humidity test for 48 h in a humidity cabinet		P
	The appliance withstands the tests of clause 16		P

16	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		
16.1	Leakage current not excessive and electric strength adequate		P
	Protective impedance disconnected from live parts before carrying out the tests		N/A
16.2	Single-phase appliances: test voltage 1.06 times	230 V X 1.06 = 243.8 V	P

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	rated voltage:		
	Three-phase appliances: test voltage 1.06 times rated voltage divided by √3:		N/A
	Leakage current measurements	(see appended table)	P
16.3	Electric strength tests according to table 7	(see appended table)	P
	No breakdown during the tests		P
17	**OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS**		
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use		N/A
	Appliance supplied with 1.06 or 0.94 times rated voltage and the most unfavourable short-circuit or overload likely to occur in normal use applied:		N/A
	Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K		N/A
	Temperature of the winding not exceeding the value specified in table 8,		N/A
	however limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61 558-1		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 or mechanical damage under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe	No electronic circuits	N/A
	Fans incorporating shutters or similar subjected to the test of cl.19.101 (IEC 60 335-2-80: 2002)	No shutter	N/A
19.2	Test of appliance with heating elements with restricted heat dissipation; test voltage (V): power input of 0.85 times rated power input:	No heating elements	N/A
19.3	Test of 19.2 repeated; test voltage (V): power input of 1.24 times rated power input:		N/A
19.4	Test conditions as in cl.11, any control limiting the		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	temperature during tests of cl.11 short-circuited		
19.5	Test of 19.4 repeated on Class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the elements sheath		N/A
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N/A
	The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during the test of 19.4		N/A
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions		N/A
	The working voltage of the PTC heating element is increased by 5 % and the appliance is operated until steady conditions are re-established. The voltage is then increased in similar steps until 1.5 times working voltage or until the PTC heating element ruptures		N/A
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque or locking moving parts of other appliances		P
	Locked rotor, motor capacitors open-circuited or short-circuited, if required		N/A
	Locked rotor, capacitors open-circuited one at a time		N/A
	Test repeated with capacitors short-circuited one at a time, if required		N/A
	Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed		N/A
	Other appliances supplied with rated voltage for a period as specified		P
	Winding temperatures not exceeding values specified in table 8	(see appended table)	P
19.8	Three-phase motors operated at rated voltage with one phase disconnected	No three-phase motors	N/A
19.9	Not applicable (IEC 60 335-2-80: 2002)		N/A
19.10	Series motor operated at 1.3 times rated voltage for 1 min:	No series motor	N/A
	During the test, parts not being ejected from the appliance		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless they comply with the conditions specified in 19.11.1		N/A
	Protective electronic circuits are subjected to the tests of 19.11.3 and 19.11.4 (IEC 60 335-1/A1)		N/A
19.11.1	Before applying the fault conditions a) to f) in 19.11.2, it is checked if circuits or parts of circuit meet both of the following conditions:		
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		N/A
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction in other parts of the appliance does not rely on the correct functioning of the electronic circuit		N/A
19.11.2	Fault conditions applied one at a time, the appliance operated under conditions specified in cl.11, but supplied at rated voltage, the duration of the tests as specified:		
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in 29		N/A
	b) open circuit at the terminals of any component		N/A
	c) short circuit of capacitors, unless they comply with IEC 60 384-14		N/A
	d) short circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition is not applied between the two circuits of an optocoupler		N/A
	e) failure of triacs in the diode mode		N/A
	f) failure of an integrated circuit. The possible hazardous situations of the appliance are assessed to ensure that safety does not rely on the correct functioning of such a component		N/A
19.11.3	If the appliance incorporates a protective electronic circuit which operates to ensure compliance with clause 19, the relevant test is repeated with a single fault simulated, as indicated in a) to f) of 19.11.2		N/A
	During and after each test the following is checked:		
	- the temperature rise of the windings do not exceed the values specified in table 8		N/A
	- the appliance complies with the conditions specified in 19.13		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		N/A
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided all three of the following conditions are met:		
	- the material of the printed circuit board withstands the burning test of annex E		N/A
	- any loosened conductor does not reduce the clearances or creepage distances between live parts and accessible metal parts below the values specified in cl.29		N/A
	- the appliance withstands the tests of 19.11.2 with open-circuited conductor bridged		N/A
19.11.4	Protective electronic circuits are subjected to the tests of clause 19.11.4.1 to 19.11.4.7 (IEC 60 335-1/A1)	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	Appliances with a switch with an off position obtaining by electronic disconnection or that can be placed in a stand-by mode, are subjected to the tests of clause 19.11/4.1 to 19.11.4 7 (IEC 60 335-1/A1)		N/A
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61 000-4-2, test level 4 (IEC 60 335-1/A1)		N/A
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61 000-4-3, test level 3 (IEC 60 335-1/A1)		N/A
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61 000-4-4, test level 3 (IEC 60 335-1/A1)		N/A
19.11.4.4	The power supply terminals of the appliance are subjected to voltage surges in accordance with IEC 61 000-4-5, test level 3 (IEC 60 335-1/A1)		N/A
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61 000-4-6, test level 3 (IEC 60 335-1/A1)		N/A
19.11.4.6	The appliance is subjected to voltage dips and interruptions in accordance with IEC 61 000-4-11 (IEC 60 335-1/A1)	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61 000-4-13, test level class 2 (IEC 60 335-1/A1)		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
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 60 127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A):		N/A
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts		P
	Temperature rises not exceeding the values shown in table 9	(see appended table)	P
	Enclosures not deformed to such an extent that compliance with cl.8 is impaired		P
	If the appliance can still be operated it complies with 20.2		N/A
	Insulation, other than of class III appliance, withstand the electric strength test of 16.3, the test voltage specified in table 4:		
	- basic insulation:	1 250	P
	- supplementary insulation:	1 750	P
	- reinforced insulation:	3 000	P
	The appliance shall not undergo a dangerous malfunction and there shall be no failure of protective electronic circuits if the appliance is still operable (IEC 60 335-1/A1)		N/A
	Appliances with an electronic switch in the off position or in the stand-by mode shall not become operable (IEC 60 335-1/A1)		N/A
19.101	Fans incorporating shutters or similar that are operated automatically are supplied at rated voltage in the closed or open position, whichever is more unfavourable (IEC 60 335-2-80)		N/A

20	**STABILITY AND MECHANICAL HAZARDS**		
20.1	Adequate stability	Built-in appliance	N/A
	Tilting test through an angle of 10° (appliance placed on an inclined plane/horizontal plane); appliance does not overturn		N/A
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N/A
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	Portable pedestal fans exceeding 1.7 m and exceeding 10 kg tested with a force of 40 N at 1.5 m (IEC 60 335-2-80: 2002)		N/A
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury	Mounting at high level	N/A
	Protective enclosures, guards and similar parts are non-detachable		N/A
	Adequate mechanical strength and fixing of protective enclosures		N/A
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard, by unexpected reclosure		N/A
	Not possible to touch dangerous moving parts with test probe		N/A
20.101	Fan blades, other than those for mounting at high level, shall be guarded, unless (IEC 60 335-2-80: 2002)		N/A
21	**MECHANICAL STRENGTH**		
	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	No damage after three blows applied to various parts of the enclosure, impact energy (0.5 ± 0.04) J		P
	If necessary, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N/A
	If necessary, repetition of groups of three blows on a new sample		N/A
21.2	Accessible parts of solid insulation shall have sufficient strength to prevent penetration by sharp implements. The parts are scratched with a hardened steel pin. After the test there shall be no damage and the insulation shall withstand the tests of clause 16.3 (IEC 60 335-1/A1)		P
21.101	Fan guards are subjected to a push and pull force of 20 N. Dangerous moving parts are not accessible (IEC 60 335-2-80: 2002)	Mounting at high level	N/A
21.102	Ceiling fans have adequate strength. Load four times mass (.....) (IEC 60 335-2-80: 2002)	No celling	N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
22	**CONSTRUCTION**		
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60 529 are fulfilled	IPX2	P
22.2	Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:		
	- a supply cord fitted with a plug		N/A
	- a switch complying with 24.3		N/A
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided		N/A
	- an appliance inlet		N/A
	Singe-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase permanently connected class I appliances, connected in the phase conductor	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
22.3	Appliance provided with pins: no undue strain on socket-outlets		N/A
	Applied torque not exceeding 0.25 Nm		N/A
	Pull force of 50 N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1 mm		N/A
	Each pin subjected to a torque of 0.4 Nm; the pins are not rotating unless rotating does not impair compliance with the standard		N/A
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		N/A
22.5	No risk of electric shock when touching the pins of the plug	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
22.6	Electrical insulation not affected by condensing water or leaking liquid		N/A
	Electrical insulation of Class II appliances not affected in case of a hose rupture or seal leak		N/A
22.7	Adequate safeguards against the risk of excessive pressure in appliances provided with 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		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances		P
	Adequate insulating properties of oil or grease to which insulation is exposed		N/A
22.10	Location or protection of reset buttons of non-self-resetting controls is so that accidental resetting is unlikely		N/A
	It shall not be possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device (IEC 60 335-1/A1)		N/A
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		N/A
	Obvious locked position of snap-in devices used for fixing such parts		N/A
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		N/A
	Tests as described		N/A
22.12	Handles, knobs etc. fixed in a reliable manner		N/A
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		N/A
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		N/A
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		N/A
22.13	Unlikely that handles, when gripped as in normal use, make the operators hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		N/A
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P
	No exposed pointed ends of self tapping screws etc., liable to be touched by the user in normal use or during user maintenance		P
22.15	Storage hooks and the like for flexible cords smooth and well rounded		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands, no undue wear of contacts		N/A
	Cord reel tested with 6000 operations, as specified		N/A
	Electric strength test of 16.3, voltage of 1000 V applied		N/A
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N/A
22.18	Current-carrying parts and other metal parts resistant to corrosion under normal conditions of use		P
22.19	Driving belts not used as electrical insulation	No driving belts	N/A
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible		N/A
	Compliance is checked by inspection and, if necessary, by appropriate test		N/A
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless impregnated		P
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used	No PCB	N/A
22.24	Bare heating elements adequately supported	No bare heating elements	N/A
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		N/A
22.25	Sagging heating conductors cannot come into contact with accessible metal parts	No sagging heating conductor	N/A
22.26	The insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation		N/A
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N/A
22.28	Metal parts of Class II appliances conductively connected to gas pipes or in contact with water: separated from live parts by double or reinforced insulation		N/A
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		P
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		P
22.31	Clearances and creepage distances over supplementary and reinforced insulation not reduced below values specified for supplementary insulation		P
	Creepage distances and clearances over supplementary or reinforced insulation not reduced to less than 50 % of values specified in 29 if wires, screws etc. becomes loose		P
22.32	Supplementary and reinforced insulation designed or protected against deposition of dirt or dust		P
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N/A
	Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation		N/A
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N/A
22.33	Conductive liquids that are or may become accessible in normal use are not in direct contact with live parts		N/A
	Electrodes not used for heating liquids		N/A
	For class II constructions, conductive liquids that are or may become accessible in normal use, not in direct contact with basic or reinforced insulation		N/A
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation		N/A
22.34	Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed		N/A
22.35	Handles, levers and knobs, held or actuated in normal use, not becoming live in the event of an insulation fault		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of an insulation fault, they are either adequately covered by insulation material, or their accessible parts are separated from their shafts or fixings by supplementary insulation		N/A
	This requirement does not apply to handles, levers and knobs on stationary appliances other than those of electrical components, provided they are either reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N/A
22.36	Handles continuously held in the hand in normal use are so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless they are separated from live parts by double or reinforced insulation		N/A
22.37	Capacitors in Class II appliances not connected to accessible metal parts, unless complying with 22.42	Class I	N/A
	Metal casings of capacitors in Class II appliances separated from accessible metal parts by supplementary insulation, unless complying with 22.42		N/A
22.38	Capacitors not connected between the contacts of a thermal cut-out		N/A
22.39	Lamp holders used only for the connection of lamps		N/A
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible	Mounting at high level	N/A
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components		N/A
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		N/A
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N/A
22.44	Appliances are not allowed to have an enclosure that is shaped and decorated so that the appliance is likely to be treated as a toy by children	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.4 due to deformation as a result of an external force applied to the enclosure		N/A
22.46	Software used in protective electronic circuits shall be software class B or software class C (IEC 60 335-1/A1)		N/A
22.47	Appliances intended to be connected to the water mains shall withstand the water pressure expected in normal use (IEC 60 335-1/A1)		N/A
22.48	Appliances intended to be connected to the water mains shall be constructed to prevent backsiphonage of non-potable water into the water mains (IEC 60 335-1/A1)		N/A
22.101	Appliances having provision for attaching a luminaire incorporate appropriate terminals and internal wiring (IEC 60 335-2-80: 2002)		N/A
23	**INTERNAL WIRING**		
23.1	Wireways smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		N/A
	Wire holes in metal well rounded or provided with bushings		N/A
	Wiring effectively prevented from coming into contact with moving parts		P
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges or corners		N/A
	Beads inside flexible metal conduits contained within an insulating sleeve		N/A
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		N/A
	Flexible metallic tubes not causing damage to insulation of conductors		N/A
	Open-coil springs not used		N/A
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N/A
	No damage after 10 000 flexings for conductors flexed during normal use or 100 flexings for conductors flexed during user maintenance		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	No damage after 100 000 flexings for conductors flexed during normal use and at rated voltage (IEC 60 335-2-80: 2002)		N/A
	Electric strength test, 1000 V between live parts and accessible metal parts		N/A
23.4	Bare internal wiring sufficiently rigid and fixed		N/A
23.5	The insulation of internal wiring withstanding the electrical stress likely to occur in normal use		P
	No breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by positive means		N/A
23.7	The colour combination green/yellow used only for earthing conductors		P
23.8	Aluminium wires not used for internal wiring		P
23.9	No lead-tin soldering of stranded conductors where they are subject to contact pressure, unless		N/A
	clamping means so constructed that there is no risk of bad contact due to cold flow of the solder		N/A
23.10	The insulation and sheath of internal wiring, in external hoses for the connection of appliances to the water mains, shall be at least equivalent to that of light polyvinyl chloride sheathed flexible cords, code designation 60 227 IEC 52 (IEC 60 335-1/A1)		N/A

24	**COMPONENTS**		
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components	(see appended table)	P
	Components not tested and found to comply with relevant IEC standard for the number of cycles specified are tested in accordance with 24.1.1 to 24.1.6		P
	Components not tested and found to comply with relevant IEC standard, components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict

24.1.1	Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, complying with IEC 60 384-14, or			N/A
	tested according to annex F			N/A
24.1.2	Safety isolating transformers complying with IEC 61 558-2-6, or			N/A
	tested according to annex G			N/A
24.1.3	Switches complying with IEC 61 058-1, the number of cycles of operation being at least 10 000, or		No switch	N/A
	tested according to annex H			N/A
24.1.4	Automatic controls complying with IEC 60 730-1 with relevant part 2. The number of cycles of operation being:			
	- thermostats:	10 000		N/A
	- temperature limiters:	1 000		N/A
	- self-resetting thermal cut-outs:	300		N/A
	- non-self-resetting thermal cut-outs:	30		N/A
	- timers:	3 000		N/A
	- energy regulators:	10 000		N/A
	- voltage maintain non-self-resetting thermal cut-outs (IEC 60 335-1/A1)	1 000		N/A
	- other non-self-resetting thermal cut-outs (IEC 60 335-1/A1)	30		N/A
24.1.5	Appliance couplers complying with IEC 60 320-1			N/A
	However, appliances classified higher than IPX0, the appliance couplers complying with IEC 60 320-2-3			N/A
24.1.6	Small lamp holders similar to E10 lampholders complying with IEC 60 238, the requirements for E10 lampholders being applicable		No lamp-holder	N/A
24.2	Switches or automatic controls in flexible cords are allowed for appliances not exceeding 25 W (IEC 60 335-2-80: 2002)		No switch or automatic controls	N/A
	No devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance			N/A
	No thermal cut-outs that can be reset by soldering			N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and having a contact separation in all poles, providing full disconnection under overvoltage category III conditions	No switch	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 60 083 or IEC 60 906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60 320-1	No extra- low voltage circuits and heating elements	N/A
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance and used accordingly		N/A
	Capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with a motor winding, are of class P1 or P2 of IEC 60 252		N/A
	Voltage across capacitors in series with a motor winding does not exceed 1.1 times rated voltage, when the appliance is supplied at 1.1 times rated voltage under minimum load		N/A
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42 V.		N/A
	In addition, the motors are complying with the requirements of Annex I		N/A
24.7	Hose-sets for the connection of appliances to the water mains shall comply with IEC 61 770 and supplied with the appliances (IEC 60 335-1/A1)		N/A
24.101	Thermal cut-outs in duct fans in order to comply with cl.19 are not self-resetting (IEC 60 335-2-80: 2002)		N/A
25	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS**		
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		
	- supply cord fitted with a plug		N/A
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance		N/A
	- pins for insertion into socket-outlets		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
25.2	Appliance not provided with more than one means of connection to the supply mains		P
	Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown		N/A
25.3	Connection of supply conductors for appliance intended to be permanently connected to fixed wiring possible after the appliance has been fixed to its support		P
	Appliance provided with a set of terminals for the connection of cables or fixed wiring, cross-sectional areas specified in 26.6		N/A
	Appliance provided with a set of terminals allowing the connection of a flexible cord		N/A
	Appliance provided with a set of supply leads accommodated in a suitable compartment		P
	Appliance provided with a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate type of cable or conduit		N/A
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimensions according to table 10		P
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in 29		N/A
25.5	Method for assemble supply cord with the appliance:		
	- type X attachment		N/A
	- type Y attachment		P
	- type Z attachment is allowed for portable fans (IEC 60 335-2-80: 2002)		N/A
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N/A
25.6	Plugs fitted with only one flexible cord		N/A
	Supply cords of single-phase portable appliances having a rated current not exceeding 16 A: plug complying with the following standard sheets of IEC 60 083: 1975 (EN 60 335-1: 2002)		N/A
	- class I appliances: standard sheet C2b, C3b or C4		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	(EN 60 335-1: 2002)		
	- class II appliances: standard sheet C5 or C6 (EN 60 335-1: 2002)		N/A
25.7	Supply cord not lighter than:		
	- braided cord (60 245 IEC 51)	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	- ordinary tough rubber sheathed cord (60 245 IEC 53)	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	- flat twin tinsel cord (60 227 IEC 41)	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	- light polyvinyl chloride sheathed cord (60 227 IEC 52), appliance not exceeding 3 kg	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	- ordinary polyvinyl chloride sheathed cord (60 227 IEC 53), appliance exceeding 3 kg	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	- ordinary polychloroprene sheathed flexible cord (60 245 IEC 57) (IEC 60 335-1, A1)	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	-ordinary polychloroprene sheathed flexible cord [60 245 IEC 57] (EN 60 335-1: 2002)	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	-Sheathed cord and rubber isolation [60 245 IEC 86] (EN 60 335-1: 2002)	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	-Polyvinyl chloride reticulated sheathed cord and rubber isolation [60 245 IEC 87] (EN 60 335-1: 2002)	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	-Sheathed cord and polyvinyl chloride reticulated insulation (60 245 IEC 88] (EN 60 335-1: 2002)	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	Temperature rise of external metal parts exceeding 75 K, PVC cord not used, unless	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	appliance so constructed that the supply cord is not likely to touch external metal parts in normal use, or	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	the supply cord is appropriate for higher temperatures, type Y or type Z attachment used	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
25.8	Nominal cross-sectional area of supply cords according to table 11; rated current (A); cross-sectional area (mm^2):	3 x 0.75mm^2, rated current: 0.05 A	P
25.9	Supply cord not in contact with sharp points or edges		P
25.10	Green/yellow core for earthing purposes in Class I appliance		P
25.11	Conductors of supply cords not consolidated by lead-tin soldering where they are subject to contact pressure, unless		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	clamping means so constructed that there is no risk of bad contacts due to cold flow of the solder		N/A
25.12	Moulding the cord to part of the enclosure does not damage the insulation of the supply cord		P
25.13	Inlet opening so shaped as to prevent damage to the supply cord		P
	Unless the enclosure at the inlet opening is of insulation material, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		N/A
	If unsheathed supply cord, a similar additional bushing or lining is required, unless		N/A
	the appliance is class 0		N/A
25.14	Supply cords adequately protected against excessive flexing		N/A
	Flexing test:		N/A
	- applied force (N):		N/A
	- number of flexings:		N/A
	The test does not result in:		N/A
	- short circuit between the conductors		N/A
	- breakage of more than 10 % of the strands of any conductor		N/A
	- separation of the conductor from its terminal		N/A
	- loosening of any cord guard		N/A
	- damage, within the meaning of the standard, to the cord or the cord guard		N/A
	- broken strands piercing the insulation and becoming accessible		N/A
25.15	Conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		P
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		P
	Pull and torque test of supply cord, values shown in table 10: pull (N); torque (not on automatic cord reel) (Nm):	100 N, 0.35 Nm	P
	Max. 2 mm displacement of the cord		P
	Creepage distances and clearances not reduced below values specified in 29.1		P

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
25.16	Cord anchorages for type X attachments constructed and located so that:		N/A
	- replacement of the cord is easily possible		N/A
	- it is clear how the relief from strain and the prevention of twisting are obtained		N/A
	- they are suitable for different types of cord		N/A
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from accessible metal parts by supplementary insulation		N/A
	- the cord is not clamped by a metal screw which bears directly on the cord		N/A
	- at least one part of the cord anchorage securely fixed to the appliance, unless part of a specially prepared cord		N/A
	- screws which have to be operated when replacing the cord do not fix any other component, if applicable		N/A
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N/A
	- for Class 0, 0I and I appliances: they are of insulating material or are provided with an insulating lining, unless a failure of the insulation of the cord does not make accessible metal parts live		N/A
	- for Class II appliances: they are of insulating material, or if of metal, they are insulated from accessible metal parts by supplementary insulation		N/A
	conductors not moved more than 1 mm in the terminals		N/A
25.17	Adequate cord anchorages for type Y and Z attachment	Type Y attachment	P
25.18	Cord anchorages only accessible with the aid of a tool, or		P
	so constructed that the cord can only be fitted with the aid of a tool		N/A
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N/A
	Tying the cord into a knot or tying the cord with string not used		N/A
25.20	Conductors of the supply cord for type Y and Z attachment adequately additionally insulated		P
25.21	Space for supply cord for type X attachment or for		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	connection of fixed wiring constructed to permit checking of conductors with respect to correct positioning and connection before fitting any cover, no risk of damage to the conductors when fitting the cover, no contact with accessible metal parts if a conductor becomes loose, etc.		
	For portable appliances, the uninsulated end of a conductor prevented from any contact with accessible metal parts, unless the end of the cord is such that the conductors are unlikely to slip free		N/A
25.22	Appliance inlet:		N/A
	- live parts not accessible during insertion or removal		N/A
	- connector can be inserted without difficulty		N/A
	- the appliance is not supported by the connector		N/A
	- is not for cold conditions if temp. rise of external metal parts exceeds 75 K, unless the supply cord is not likely to touch such metal parts		N/A
25.23	Interconnection cords comply with the requirements for the supply cord, except as specified		N/A
	If necessary, electric strength test of 16.3		N/A
25.24	Interconnection cords not detachable without the aid of a tool if compliance with the standard is impaired when they are disconnected		N/A
25.25	Dimensions of pins compatible with the dimensions of the relevant socket-outlet. Dimensions of pins and engagement face in accordance with the relevant plug in IEC 60 083		N/A

26	**TERMINALS FOR EXTERNAL CONDUCTORS**		
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors		N/A
	Terminals only accessible after removal of a non-detachable cover		N/A
	Only the earthing terminal may be accessible if a tool is required to make the connections and means to provide to clamp the wire independently from its connection (IEC 60 335-1/A1)		P

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
26.2	Appliances with type X attachment and appliances for connection to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless the connections are soldered		N/A
	Screws and nuts serve only to clamp supply conductors, except		N/A
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		P
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone		N/A
	Soldering alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free at the soldered joint		N/A
26.3	Terminals for type X attachment and for connection to fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure and without damaging the conductor		N/A
	Terminals for type X attachment and those for connection to fixed wiring so fixed that when tightening or loosening the clamping means:		
	- the terminal does not loosen		N/A
	- internal wiring is not subjected to stress		N/A
	- clearances and creepage distances are not reduced below the values in 29		N/A
	Compliance checked by inspection and by the test of subclause 8.6 of IEC 60 999-1, the torque applied being equal to two-thirds of the torque specified. Nominal diameter of thread (mm); screw category; torque (Nm):	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
26.4	Terminals for type X attachment, except those with a specially prepared cord, and those for connection to fixed wiring, no special preparation of conductors required, and so constructed or placed that conductors prevented from slipping out		N/A
26.5	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard		N/A
	Stranded conductor test, 8 mm insulation removed		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	No contact between live parts and accessible metal parts and, for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N/A
26.6	Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm^2):	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	Terminals only suitable for a specially prepared cord		N/A
26.7	Terminals for type X attachment accessible after removal of a cover or part of the enclosure		N/A
26.8	Terminals for the connection to fixed wiring, including the earthing terminal, located close to each other		N/A
26.9	Terminals of the pillar type constructed and located as specified		N/A
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless conductors ends fitted with a device suitable for screw terminals		N/A
	Pull test of 5 N to the connection		N/A
26.11	For type Y and Z attachment: soldered, welded, crimped and similar connections may be used		P
	For Class II appliances: the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone	Class I appliance	N/A
	For Class II appliances: soldering, welding or crimping alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free	Class I appliance	N/A

27	**PROVISION FOR EARTHING**		
27.1	Accessible metal parts of Class 0I and I appliances, permanently and reliably connected to an earthing terminal or contact of the appliance inlet		P
	Earthing terminals not connected to neutral terminal		P

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
27.2	Clamping means adequately secured against accidental loosening		P
	Terminals used for the connection of external equipotential bonding conductors allow connection of conductors of 2.5 mm² to 6 mm², and		N/A
	do not provide earthing continuity between different parts of the appliance		N/A
	Conductors cannot be loosened without the aid of a tool		N/A
27.3	For appliances with supply cord, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		P
	If a detachable part having an earth connection is plugged into another part of the appliance, the earth connection shall be made before the current-carrying connections are established and the current carrying connections shall be separated before the earth connection when removing the part (IEC 60 335-1/A1)		N/A
27.4	No risk of corrosion resulting from contact between metal of earthing terminal and other metal		P
	Adequate resistance to corrosion of coated or uncoated parts providing earthing continuity, other than parts of a metal frame or enclosure		N/A
	Parts of steel providing earthing continuity provided at the essential areas with an electroplated coating, thickness at least 5 µm		N/A
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N/A
	In case of aluminium alloys precautions taken to avoid risk of corrosion		N/A
27.5	Low resistance of connection between earthing terminal and earthed metal parts		P
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided that clearances of basic insulation are based on the rated voltage of the appliance		N/A
	Resistance not exceeding 0.1 Ω at the specified low-resistance test	0.024 Ω	P
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand held appliances	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	They may be used in other appliances if:		
	- at least two tracks are used with independent soldering points and the appliance complies with requirements of 27.5 for each circuit	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	- the material of the printed circuit board complies with IEC 60 249-2-4 or IEC 60 249-2-5	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
28	**SCREWS AND CONNECTIONS**		
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium		P
	Diameter of screws of insulating material min. 3 mm		N/A
	Screws of insulating material not used for any electrical connection or connections providing earthing continuity		N/A
	Screws used for electrical connections or connections providing earthing continuity screw into metal		N/A
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N/A
	Type X attachment, screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw can impair basic insulation		N/A
	For screws and nuts; test as specified	(see appended table)	P
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure not transmitted through insulating material liable to shrink or distort, unless shrinkage or distortion compensated		N/A
	This requirement does not apply to electrical connections in circuits carrying a current not exceeding 0.5 A		P
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		P
	Thread-cutting (self-tapping) screws only used for electrical connections if they generate a full form standard machine screw thread	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	Such screws not used if they are likely to be operated by the user or installer unless the thread is formed by a swaging action	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	Thread-cutting and space-threaded screws may be used in connections providing earthing continuity, provided unnecessary to disturb the connection and at least two screws are used for each connection	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	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		N/A
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if 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 or to provide basic insulation, annex J applies	No PCB	N/A
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15		P
	The values specified may be smaller for basic insulation and functional insulation if the clearance meets the impulse voltage test of clause 14		N/A
	Appliances are in overvoltage category II		P
	Clearances less than specified in table 16 not allowed for basic insulation of class 0 and class 0I appliances,		N/A
	or if pollution degree 3 is applicable		N/A
	Compliance is checked by inspection and measurements as specified		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1 mm if the microenvironment is pollution degree 1		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	Lacquered conductors of windings assumed to be bare conductors, but the clearances specified in table 16 are reduced by 0.5 mm for rated impulse voltages of at least 1500 V		N/A
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16		P
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, but using the next higher step for rated impulse voltage		P
29.1.4	For functional insulation, the values of table 16 are applicable, unless		P
	the appliance complies with clause 19 with the functional insulation short-circuited		N/A
	Clearances at crossover points of lacquered conductors not measured		N/A
	Clearance between surfaces of PTC heating elements may be reduced to 1 mm		N/A
	Lacquered conductors of windings assumed to be bare conductors, but the clearances specified in table 16 are reduced by 0.5 mm for rated impulse voltages of at least 1500 V		N/A
29.1.5	Appliances having higher working voltage than rated voltage, the voltage used for determining clearances from table 16 is the sum of the rated impulse voltage and the difference between the peak value of the working voltage and the peak value of the rated voltage		N/A
	If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage		N/A
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation based on the working voltage used as the rated voltage in table 15		N/A
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree		P
	Pollution degree 2 applies, unless		P
	precautions taken to protect the insulation; pollution degree 1		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	insulation subjected to conductive pollution; pollution degree 3		N/A
	Compliance is checked by inspection and measurements as specified		P
	Microenvironment is pollution degree 3 unless insulation is enclosed or located that it is unlikely to be exposed to pollution during normal use (IEC 60 335-2-80: 2002)		N/A
29.2.1	Creepage distances of basic insulation not less than specified in table 17		P
	For pollution degree 1, creepage distance not less than the minimum specified for the clearance in table 16, if the clearance has been checked according to the test of clause 14		N/A
29.2.2	Creepage distances of supplementary insulation at least as specified for basic insulation in table 17		P
29.2.3	Creepage distances of reinforced insulation at least double as specified for basic insulation in table 17		P
29.2.4	Creepage distances of functional insulation not less than specified in table 18		P
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
29.3	Solid insulation having a minimum thickness of 1 mm for supplementary insulation,		P
	and 2 mm for reinforced insulation		P
	This requirement does not apply if the supplementary insulation, other than mica or similar scaly material, consists of at least two layers, each of the layers withstands the electric strength test of 16.3		N/A
	This requirement does not apply if the reinforced insulation, other than mica or similar scaly material, consists of at least three layers, any two layers together withstand the electric strength test of 16.3		N/A
	This requirement also does not apply to inaccessible insulation and does not exceed the maximum permissible temperature values, or		N/A
	if the insulation, after conditioning as specified, withstands the electric strength test of 16.3		N/A
	an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3 and,	**Covered by IEC/EN 60 335-1/A12: 2006, See appendix 2**	N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	for accessible reinforced insulation consisting of a si ngle layer, measurement in accordance with 29.3.Z 1	**Covered by IEC/EN 60 335-1/A12: 2006, See appendix 2**	N/A
29.3.1	The thickness of the insulation shall be at least - 1 mm for supplementary insulation - 2 mm for reinforced insulation (IEC 60 335-1/A1)		P
29.3.2	Each layer of material shall withstand the tests of clause 16.3. Supplementary insulation shall consist of at least 2 layer and reinforced insulation at least 3 layers (IEC 60 335-1/A1)		N/A
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60 068-2-2 for 48 hours at a temperature of 50 K in excess of the maximum temperature rise during clause 19 and withstand the tests of clause 16.3 (IEC 60 335-1/A1)		N/A
30	**RESISTANCE TO HEAT AND FIRE**		
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	thermoplastic material providing supplementary or reinforced insulation,		N/A
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60 695-10-2		P
	External parts: at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C):	75 °C	P
	Parts supporting live parts: at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 125 °C, whichever is the higher; temperature (°C):	125 °C	P
	Parts of thermoplastic material providing supplementary or reinforced insulation, 25 °C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C):		N/A
30.2	Relevant parts of non-metallic material adequately resistant to ignition and spread of fire	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
30.2.1	Glow-wire test of IEC 60 695-2-11 at 550 °C, unless	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	the material is classified at least HB40 according to IEC 60 695-11-10	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	Parts for which the glow-wire test cannot be carried out meet the requirements in ISO 9772 for category FH3 material	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
30.2.2	Appliances operated while attended, parts of insulating material supporting current-carrying connections and parts within a distance of 3 mm subjected to the glow-wire test of IEC 60 695-2-11 at a temperature of:		
	-750 °C, for connections carrying a current exceeding 0.5 A during normal operation	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	-650 °C, for other connections	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	Test not applicable to conditions as specified	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	Test not applicable to conditions as specified	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
30.2.3.1	Parts of insulating material supporting connections carrying a current exceeding 0.2 A during normal operation, and	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	parts of insulating material within a distance of 3 mm,	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	having a glow-wire flammability index of at least 850 °C according to IEC 60 695-2-12	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
30.2.3.2	Parts of insulating material supporting current-carrying connections, and	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	parts of insulating material within a distance of 3 mm,	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	subjected to glow-wire test of IEC 60 695-2-11		N/A
	Test not carried out on material having a glow-wire ignition temperature according to IEC 60 695-2-13 as specified	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	Glow-wire test of IEC 60 695-2-11, the temperature being:		
	-750 °C, for connections carrying a current exceeding 0.2 A during normal operation	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	-650 °C, for other connections	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	Parts that during the test produce a flame persisting longer than 2 s, tested as specified	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	If a flame persists longer than 2 s during the test, parts above the connection, as specified, subjected to the needle-flame test of annex E, unless	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	the material is classified as V-0 or V-1 according to IEC 60 695-11-10	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
30.2.4	Base material of printed circuit boards subjected to needle-flame test of annex E	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	Test not applicable to conditions as specified	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
31	**RESISTANCE TO RUSTING**		
	Relevant ferrous parts adequately protected against rusting		P
32	**RADIATION, TOXICITY AND SIMILAR HAZARDS**		
	Appliance does not emit harmful radiation	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	Appliance does not present a toxic or similar hazard	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
A	**ANNEX A (INFORMATIVE) ROUTINE TESTS**		
	Description of routine tests to be carried out by the manufacturer		N/A
B	**ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES**		
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		N/A
	This annex does not apply to battery chargers		N/A
3.1.9	Appliance operated under the following conditions:		
	-the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		N/A
	-the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate		N/A
	-if possible, the appliance is supplied from the supply mains through its battery charger, the battery being initially discharged to such an extent that the appliance cannot operate. The appliance is operated as specified in relevant part 2		N/A
	If the appliance incorporates inductive coupling		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	between two parts that are detachable from each other, the appliance is supplied from the supply mains with the detachable part removed		
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		N/A
5.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances		N/A
7.1	Battery compartment for batteries intended to be replaced by the user, marked with battery voltage and polarity of the terminals		N/A
7.12	The instructions for appliances incorporating batteries intended to be replaced by the user includes required information		N/A
	Details about how to remove batteries containing materials hazardous to the environment given		N/A
7.15	Markings placed on the part of the appliance connected to the supply mains		N/A
8.2	Appliances having batteries that according to the instruction may be replaced by the user need only have basic insulation between live parts and the inner surface of the battery compartment		N/A
	If the appliance can be operated without batteries, double or reinforced insulation required		N/A
11.7	The battery is charged for the period described		N/A
19.1	Appliances subjected to tests of 19.101, 19.102 and 19.103		N/A
19.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		N/A
19.102	Short-circuiting of the terminals of the battery, being fully charged, for appliances having batteries that can be removed without the aid of a tool		N/A
19.103	Appliances having batteries replaceable by the user supplied at rated voltage under normal operation with the battery removed or in any position allowed by the construction		N/A
21.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength, checked according to procedure 2 of IEC 68-2-32		N/A
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60 068-2-32, the number of falls being:		
	- 100, the mass of part does not exceed 250 g		N/A
	- 50, the mass of part exceeds 250 g		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N/A
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N/A
25.13	An additional lining or bushing not required for interconnection cords operating at safety extra-low voltage		N/A
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N/A
	For other parts, 30.2.2 applies		N/A
C	**ANNEX C (NORMATIVE)** **AGEING TEST ON MOTORS**		
	Tests, as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding		N/A
D	**ANNEX D (NORMATIVE)** **ALTERNATIVE REQUIREMENTS FOR PROTECTED MOTORS**		
	Applicable to motors that incorporate thermal motor protectors (IEC 60 335-1, A1)		N/A
	- self-resetting thermal motor protectors for 300 cycles or for 72 hours		N/A
	- non-self-resetting thermal motor protectors for 30 cycles		N/A
	During the test temperatures shall not exceed the values specified in 19.7 and the appliance shall comply with 19.13		N/A
E	**ANNEX E (NORMATIVE)** **NEEDLE-FLAME TEST**		
	Needle-flame test carried out in accordance with IEC 60 695-2-2, with the following modifications:	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
5	Severities		
	The duration of application of the test flame is 30 s ± 1 s	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
8	Test procedure		

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
8.2	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
8.4	The first paragraph does not apply		
	If possible, the flame is applied at least 10 mm from a corner	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
8.5	The test is carried out on one specimen		
	If the specimen does not withstand the test, the test may be repeated on two further specimens, both withstanding the test	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
10	Evaluation of test results		
	The duration of burning not exceeding 30 s	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
	However, for printed circuit boards, the duration of burning not exceeding 15 s	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
F	**ANNEX F (NORMATIVE)** **CAPACITORS**		
	Capacitors likely to be permanently subjected to the supply voltage, and used for radio interference suppression or voltage dividing, comply with the following clauses of IEC 60 384-14, with the following modifications:		N/A
1.5	Terminology		
1.5.3	Class X capacitors tested according to subclass X2		N/A
1.5.4	This subclause is applicable		N/A
1.6	Marking		
	Items a) and b) are applicable		N/A
3.4	Approval testing		N/A
3.4.3.2	Table II is applicable as described		N/A
4.1	Visual examination and check of dimensions		
	This subclause is applicable		N/A
4.2	Electrical tests		
4.2.1	This subclause is applicable		N/A
4.2.5	This subclause is applicable		N/A
4.2.5.2	Only table IX is applicable		N/A
	Values for test A apply		N/A
	However, for capacitors in heating appliances the		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	values for test B or C apply		
4.12	Damp heat, steady state		
	This subclause is applicable		N/A
	Only insulation resistance and voltage proof are checked		N/A
4.13	Impulse voltage		
	This subclause is applicable		N/A
4.14	Endurance		
	Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 applicable		N/A
4.14.7	Only insulation resistance and voltage proof are checked		N/A
	Visual examination, no visible damage		N/A
4.17	Passive flammability test		
	This subclause is applicable		N/A
4.18	Active flammability test		
	This subclause is applicable		N/A

G	**ANNEX G (NORMATIVE)** **SAFETY ISOLATING TRANSFORMERS**		
	The following modifications to this standard are applicable for safety isolating transformers:		N/A
7	Marking and instructions		
7.1	Transformers for specific use marked with:		N/A
	-name, trademark or identification mark of the manufacturer or responsible vendor		N/A
	-model or type reference		N/A
17	Overload protection of transformers and associated circuits		
	Fail-safe transformers comply with subclause 15.5 of IEC 61 558-1		N/A
22	Construction		
	Subclauses 19.1 and 19.1.2 of IEC 61 558-2-6 are applicable		N/A
29	Clearances, creepage distances and solid insulation		
29.1 and 29.2	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61 558-1 apply		N/A
29.1, 29.2	The distances specified in items 2a, 2c and 3 in		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
and 29.3	table 13 of IEC 61 558-1 apply (EN 60 335-1: 2002/A11: 2004)		
H	**ANNEX H (NORMATIVE) SWITCHES**		
	Switches comply with the following clauses of IEC 61 058-1, as modified:		N/A
	-The tests of IEC 61 058-1 carried out under the conditions occurring in the appliance		N/A
	-Before being tested, switches are operated 20 times without load		N/A
8	Marking and documentation		
	Switches are not required to be marked		N/A
	However, switches that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference		N/A
13	Mechanism		
	The tests may be carried out on a separate sample		N/A
15	Insulation resistance and dielectric strength		
15.1	Not applicable		N/A
15.2	Not applicable		N/A
15.3	Applicable for full disconnection and micro-disconnection		N/A
17	Endurance		
	Compliance is checked on three separate appliances or switches		N/A
	For 17.2.4.4, the number of cycles is 10 000, unless otherwise specified in 24.1.3 of the relevant part 2 of IEC 60 335		N/A
	Switches for operation under no load and which can be operated only by a tool and switches operated by hand that are interlocked so that they cannot be operated under load, are not subjected to the tests		N/A
	Subclause 17.2.5.2 is not applicable		N/A
	Temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60 335-1		N/A
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		
	This clause is applicable to clearances and creepage distances for functional insulation, across		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	full disconnection and micro-disconnection, as stated in table 24		
I	**ANNEX I (NORMATIVE)** **MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE**		
	The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance:		N/A
8	Protection against access to live parts		
8.1	Metal parts of the motor are considered to be bare live parts		N/A
11	Heating		
11.3	Temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N/A
11.8	Temperature rise of the body of the motor, where in contact with insulating material, not exceeding values in table 3 for the relevant insulating material		N/A
16	Leakage current and electric strength		
16.3	Insulation between live parts of the motor and its other metal parts not subjected to the test		N/A
19	Abnormal operation		
19.1	The tests of 19.7 to 19.9 not carried out		N/A
19.101	Appliance operated at rated voltage with each of the following fault conditions:		
	- short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N/A
	- short circuit of each diode of the rectifier		N/A
	- open circuit of the supply to the motor		N/A
	- open circuit of any parallel resistor, the motor being in operation		N/A
	Only one fault simulated at a time, the tests carried out consecutively		N/A
22	Construction		
22.101	For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation		N/A
	Compliance checked by the tests specified for double and reinforced insulation		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
J	**ANNEX J (NORMATIVE)** **COATED PRINTED CIRCUIT BOARDS**		
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60 664-3 with the following modifications:	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
6.6	Climatic sequence		
	When production samples are used, three samples of the printed circuit board are tested	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
6.6.1	Cold		
	The test is carried out at -25 °C	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
6.6.3	Rapid change of temperature		
	Severity 1 is specified	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
6.8.6	Partial discharge extinction voltage		
	Type A coatings not subjected to a partial discharge test	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A
6.9	Additional tests		
	This subclause is not applicable	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A

K	**ANNEX K (NORMATIVE)** **OVERVOLTAGE CATEGORIES**		
	The information on overvoltage categories is extracted from IEC 60 664-1		P
	Overvoltage category is a numeral defining a transient overvoltage condition		P
	Equipment of overvoltage category IV is for use at the origin of the installation		N/A
	Equipment of overvoltage category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements		N/A
	Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation		P
	If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	Equipment of overvoltage category I is equipment for connection to circuits in which measures are taken to limit transient overvoltages to an appropriate low level		N/A
L	**ANNEX L (INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES**		
	Sequences for the determination of clearances and creepage distances		P
M	**ANNEX M (NORMATIVE) POLLUTION DEGREE**		
	The information on pollution degrees is extracted from IEC 60 664-1		P
	Pollution		
	The microenvironment determines the effect of pollution on the insulation, taking into account the microenvironment		P
	Means may be provided to reduce pollution at the insulation by effective enclosures or similar		P
	Minimum clearances specified where pollution may be present in the microenvironment		P
	Degrees of pollution in the microenvironment		
	For evaluating creepage distances, the following degrees of pollution in the microenvironment are established:		
	- pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence		N/A
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected		P
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected		N/A

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N/A
N	**ANNEX N (NORMATIVE) PROOF TRACKING TEST**		
	The proof tracking test is carried out in accordance with IEC 60 112 with the following modifications:		
5	Test apparatus		
5.1	Electrodes		—
	The note does not apply		P
5.4	Test solutions		
	Test solution A is used		P
6	Procedure		
6.3	Proof tracking test		—
	Voltage is 100 V, 175 V, 400 V or 600 V:	100 V	P
	Note 3 of clause 3 applies		N/A
	The test is carried out on five specimens		P
	In case of doubt, additional test with voltage reduced by 25 V, the number of drops increased to 100		N/A
7	Report		
	The report stating if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		P
10.1	The proof voltage is 100 V, 175 V, 400 V or 600 V	100 V	P
10.2	The report shall state if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V (IEC 60 335-1/A1)		P
O	**ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30**		
	Description of tests for determination of resistance to heat and fire		P

IEC / EN 60 335-2-80			
Clause	Requirement – Test	Result – Remark	Verdict
P	**ANNEX P (INFORMATIVE)** **GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMATES**		
5.7	Ambient temperature during tests of clause 11 and 13 is 40 +/- 3 ℃ (IEC 60 33 5-1/A1)		N/A
7.1	The appliance shall be marked with the letters WDaE (IEC 60 335-1/A1)		N/A
7.12	The instructions shall state that the appliance is to be supplied trough a residual current device (RCD) not exceeding 30 mA (IEC 60 335-1/A1)		N/A
15.3	The value of t is 37 ℃ (IEC 6 0 335-1/A1)		N/A
19.13	The leakage current test of clause 16.2 is applied (IEC 60 335-1/A1)		N/A
R	**ANNEX R (INFORMATIVE) SOFTWARE EVALUATION ACCORDING TO IEC 60 730-1**		
H.2	Only definitions H.2.16 to H.2.20 are applicable (IEC 60 335-1/A1)		N/A
H.11.12	All the subclauses of H.11.12 as modified are applicable (IEC 60 335-1/A1)		N/A
H.11.12.7.1	For appliances using software class C having a single channel with self-test monitoring structure, the manufacturer shall provide measures (IEC 60 335-1/A1)		N/A
H.11.12.8	Software fault/error detection shall occur before compliance with clause 19.13 is impaired (IEC 60 335-1/A1)		N/A
H.11.12.13	Software and safety related hardware under its control shall initialize and terminate before compliance with clause 19.13 is impaired (IEC 60 335-1/ A1)		N/A

Clause	Requirement – Test	Result – Remark	Verdict
Appendix 1: To complete the assessment according to EN 60 335-1 / EN 60 335-2-80 the following requirements are considered as well :			
GROUP DIFFERENCES to IEC 60 335-1, 4th ed (CB Bulletin 107B)			
6.1	Protection against electric shock: Class ~~0, 0I (IEC 60 335-1)~~, I, II, III	Class I	P
7.1	Rated voltage or voltage range shall cover -230 V for single-phase appliances -400 V for multi-phase appliances		P
25.6	Supply cords of single-phase portable appliances having a rated current not exceeding 16 A shall be provided with a plug complying with the following standard sheets of IEC 60 083: 1975:		——
	-for Class I appliances (standard sheet C2b, C3b or C4)	No plug	N/A
	-for Class II appliances (standard sheet C5 or C6)		N/A
25.7	Add -ordinary polychloroprene sheathed flexible cord (code designation 60 245 IEC 57) (H05RN-F)		N/A
	When supply cords having high flexibility are used, they shall not be lighter than :		——
	- rubber insulated and sheathed cord (code designation 60 245 IEC 86) (H03RR-H);		N/A
	- rubber insulated, crosslinked PVC sheathed cord (code designation 60 245 IEC 87) (H03RV4-H);		N/A
	- crosslinked PVC insulated and sheathed cord (code designation 60 245 IEC 88) (H03V4V4-H).		N/A
	NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		P

ANNEX ZC (normative)	Normative references to international publications with their corresponding European publications		P
ANNEX ZD (informative)	IEC and CENELEC code designations for flexible cords		P

ZA	**ANNEX ZA, SPECIAL NATIONAL CONDITIONS** (EN 60 335-1: 2002)		——
7.12	DENMARK: requirements regarding marking tag of power supply cord and connecting of earthing wire		Not checked

Clause	Requirement – Test	Result – Remark	Verdict
19.5	NORWAY: the test is also applicable to appliances intended to be permanently connected to fixed wiring		Not checked
22.2	FRANCE, NORWAY: The second paragraph of this subclause dealing with single-phase Class I permanently connected appliances with heating elements is not applicable due to the supply system		Not checked
25.6	BELGIUM, FRANCE, SPAIN , UNITED KINGDOM: plugs according to Standard Sheet C2b not allowed		Not checked
	AUSTRIA, FINLAND, GERMANY, ICELAND, IRELAND, ITALY, LUXEMBOURG, NETHERLANDS, NORWAY, PORTUGAL, SPAIN, SWEDEN, SWITZERLAND, UNITED KINGDOM: plugs according to Standard C3b not allowed		Not checked
	DENMARK: Supply cords of single-phase portable appliances having a rated current not exceeding 13 A provided with a plug according to the following:		—
	- Class I appliances: Section 107-2-D1 Standard Sheet DK2-1a		Not checked
	For appliances covered by a Part 2 of EN 60 335, also plugs in accordance with Section 107-2-D1 Standard Sheet C2b, C3b or C4 are allowed		Not checked
	- Class II appliances: Section 107-2-D1, Standard Sheet C1b ,C5, C6, DKA2-1a and DKA2-1b		Not checked
	Stationary single-phase appliances, having a rated current not exceeding 13 A, and provided with a plug, the plug is in accordance with the requirements above		Not checked
	Multi-phase appliances and single-phase appliances having a rated current exceeding 13 A, and provided with a plug, the plug is in accordance with the requirements below:		—
	- Class I appliances: Section 107-2-D1, Standard Sheet DK6-1a/EN 60 309-2, Standard Sheet 2-II, 2-IV		Not checked
	- Class II appliances: Section 107-2-D1, Standard Sheet DK6-1a*/2-II, 2-IV*		Not checked
	For max. allowed current values see EN 60 335-1		Not checked
	IRELAND: plug is in accordance with Standard Sheets B2 and C2b (see annex ZB as well)		Not checked

Clause	Requirement – Test	Result – Remark	Verdict
	ITALY: Only plugs listed in CENELEC Report ROBT-005: 2001 are allowed		Not checked
	SPAIN: For household appliances the following plugs only are allowed:		—
	- UNE 20 315: ESC 10-1b, C2b, C4, C6, or ESB 25-5b;		Not checked
	- UNE-EN 50 075		Not checked
	SWITZERLAND: supply cords of portable household and similar electrical appliances, rated current not exceeding 10 A, provided with a plug complying with SEV 1011 or IEC 60 884-1 and one of the following dimension sheets:		—
	SEV 6532-2: 1991 plug type 15 3P+N+PE 250/400 V, 10 A		Not checked
	SEV 6533-2: 1991 plug type 11 L+N 250 V, 10 A		Not checked
	SEV 6534-2: 1991 plug type 12 L+N+PE 250 V, 10 A		Not checked
	UNITED KINGDOM: plug according to Standard Sheet B2 or C5 used (refer to Annex ZB)		Not checked
25.8	IRELAND, UNITED KINGDOM: replacement of figures (rated current/cross-sectional area) in the table		Not checked

ZB	**ANNEX ZB, A-DEVIATIONS** (EN 60 335-1: 2002)		—
4	SWITZERLAND: information about batteries		N/A
7.1	ITALY: the voltage is 220 V/380 V		N/A
	SPAIN: the voltages are 127 V/220 V and 220 V/380 V		N/A
25.6	IRELAND / UNITED KINGDOM: regulations concerning plugs to be fitted to domestic appliances		N/A

EN 60 335-1/A12: 2006			
Clause	Requirement – Test	Result – Remark	Verdict
Appendix 2: EN 60 335-1/A12: 2006			
29.3	- an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3 and,		N/A
	for accessible reinforced insulation consisting of a single layer, measurement in accordance with 29.3.Z1		N/A
29.3.Z1	If accessible reinforced insulation consists of a single layer, the thickness of this layer shall comply with Table Z1		N/A

Z1	TABLE: Minimum thickness for single layer accessible reinforced insulation			
Rated voltage V	Minimum thickness for single layers used for accessible reinforced insulation mm			
	Over voltage category I	Over voltage category II	Over voltage category III	Verdict
< 50	0.01	0.04	0.1	N/A
> 50 and ≤ 150	0.1	0.3	0.6	N/A
> 150 and ≤ 300	0.3	0.6	1.2	N/A

IEC/EN 60 335-1/A2: 2006			
Clause	Requirement – Test	Result – Remark	Verdict

Appendix 3: IEC/EN 60 335-1/A2: 2006			
5	**GENERAL CONDITIONS FOR THE TESTS**		—
5.3	(Addition:) The test of 19.14 is carried out before the tests of 19.11 (IEC/EN 60 335-1/A2: 2006)		N/A

7	**MARKING AND INSTRUCTIONS**		—
7.5	(Replacement:) the power input is related to the arithmetic mean value of the rated voltage range (IEC/EN 60 335-1/A2: 2006)		P
7.6	(Replacement:) -symbol IEC 60 417-5032-1 (DB: 2002-10) -symbol IEC 60 417-5032-2 (DB: 2002-10) (IEC/EN 60 335-1/A2: 2006)	3 ~ 3N ~	N/A
	(Replacement:) -symbol ISO 7000-1641 (DB: 2004-01)] (IEC/EN 60 335-1/A2: 2006)		N/A
	(Addition:) -symbol ISO 7000-0790 (DB: 2004-01) (IEC/EN 60 335-1/A2: 2006)		N/A
7.12	(Addition:) This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety (IEC/EN 60 335-1/A2: 2006)		P
	(Addition:) Children should be supervised to ensure that they do not play with the appliance (IEC/EN 60 335-1/A2: 2006)		P

8	**PROTECTION AGAINST ACCESS TO LIVE PARTS**		—
8.1.4	Accessible part not considered live if:		
	(Addition:)– for voltages having a peak value over 15 kV, the energy in the discharge shall not exceed 350 mJ. (IEC/EN 60 335-1/A2: 2006)		N/A

IEC/EN 60 335-1/A2: 2006			
Clause	Requirement – Test	Result – Remark	Verdict
	(Addition:) The quantity of electricity and energy in the discharge is measured using a resistor having anominal non-inductive resistance of 2 000 Ω (IEC/EN 60 335-1/A2: 2006)		N/A
8.2	(Replacement) Compliance is checked by inspection and by applying test probe B of IEC 61 032 in accordance with the conditions specified in 8.1.1. (IEC/EN 60 335-1/A2: 2006)		P
10	**POWER INPUT AND CURRENT**		—
10.1	(Addition:) The permissible deviations apply for both limits of the range for appliances marked with a rated voltage range having limits differing by more than 10 % of the arithmetic mean value of the range. (IEC/EN 60 335-1/A2: 2006)		N/A
	(Addition:) The test is carried out at both the upper and lower limits of the ranges for appliances marked with one or more rated voltage ranges, unless (IEC/EN 60 335-1/A2: 2006)		N/A
	(Addition:) the marking of the rated power input is related to the arithmetic mean value of the relevant voltage range, in which case the test is carried out at a voltage equal to the arithmetic mean value of that range (IEC/EN 60 335-1/A2: 2006)		P
10.2	(Addition:) The permissible deviations apply for both limits of the range for appliances marked with a rated voltage range having limits differing by more than 10 % of the arithmetic mean value of the range. (IEC/EN 60 335-1/A2: 2006)		N/A
	(Addition:) The test is carried out at both the upper and lower limits of the ranges for appliances marked with one or more rated voltage ranges, unless (IEC/EN 60 335-1/A2: 2006)		N/A
	(Addition:) the marking of the rated current is related to the arithmetic mean value of the relevant voltage range, in which case the test is carried out at a voltage equal to the arithmetic mean value of that range (IEC/EN 60 335-1/A2: 2006)		N/A
11	**HEATING**		—

IEC/EN 60 335-1/A2: 2006			
Clause	Requirement – Test	Result – Remark	Verdict
	(Addition:) Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly are subjected to the test of 19.11.4.8, unless restarting at any point in the operating cycle after interruption of operation due to a supply voltage dip will not result in a hazard. (IEC/EN 60 335-1/A2: 2006)		N/A
	(Addition:) The test is carried out after removal of all batteries and other components intended to maintain the programmable component supply voltage during mains supply voltage dips, interruptions and variations. (IEC/EN 60 335-1/A2: 2006)		N/A
	(Replacement:) Appliances having a device with an off position obtained by electronic disconnection, or a device that can place the appliance in a stand-by mode, are subjected to the tests of 19.11.4. (IEC/EN 60 335-1/A2: 2006)		N/A
	(Replacement:) 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: (IEC/EN 60 335-1/A2: 2006)		—
	- the material of the printed circuit board withstands the burning test of annex E		N/A
	- any loosened conductor does not reduce the clearances or creepage distances between live parts and accessible metal parts below the values specified in cl.29		N/A
19.11.2	(Addition:) g) failure of an electronic power switching device in a partial turn-on mode with loss of gate (base) control. During this test, winding temperatures shall not exceed the values given in 19.7. (IEC/EN 60 335-1/A2: 2006)		N/A
19.11.4	(Replacement:) In the first paragraph, replace "switch" by "device" In the last paragraph, replace "arresters" by "protective devices" (IEC/EN 60 335-1/A2: 2006)		N/A
19.11.4.6	(Replacement:) The appliance is subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61 000-4-11. The values specified in Table 1 and Table 2 of IEC 61 000-4-11 are applied at zero crossing of the supply voltage (IEC/EN 60 335-1/A2: 2006)		N/A

IEC/EN 60 335-1/A2: 2006			
Clause	Requirement – Test	Result – Remark	Verdict
19.11.4.8	(Addition:) The appliance is supplied at rated voltage and operated under normal operation. After approximately 60 s, the power supply voltage is reduced to a level such that the appliance ceases to respond to user inputs or parts controlled by the programmable component cease to operate, whichever occurs first. This value of supply voltage is recorded. (IEC/EN 60 335-1/A2: 2006)		N/A
	(Addition:) The appliance is supplied at rated voltage and operated under normal operation. The voltage is then reduced to a value of approximately 10 % less than the recorded voltage. It is held at this value for approximately 60 s and then increased to rated voltage. The rate of decrease and increase of the power supply voltage is to be approximately 10 V/s. (IEC/EN 60 335-1/A2: 2006)		N/A
	(Addition:) The appliance shall continue to either operate normally from the same point in its operating cycle at which the voltage decrease occurred or a manual operation shall be required to restart it. (IEC/EN 60 335-1/A2: 2006)		N/A
19.13	(Replacement:) After the tests, and when the appliance has cooled to approximately room temperature, compliance with Clause 8 shall not be impaired and the appliance shall comply with 20.2 if it can still be operated. (IEC/EN 60 335-1/A2: 2006)		P
	(Addition:) After the operation or interruption of a control, clearances and creepage distances across the functional insulation shall withstand the electric strength test of 16.3, the test voltage, however, being twice the working voltage. (IEC/EN 60 335-1/A2: 2006)		N/A
	(Replacement:) Appliances tested with an electronic switch in the off position, or in the stand-by mode, shall (IEC/EN 60 335-1/A2: 2006)		—
	– not become operational, or		N/A
	– if they become operational, not result in a dangerous malfunction during or after the tests of 19.11.4.		N/A
19.14	(Addition:) Appliances are operated under the conditions of Clause 11. Any contactor or relay contact that operates under the conditions of Clause 11 is short-circuited. (IEC/EN 60 335-1/A2: 2006)		N/A

IEC/EN 60 335-1/A2: 2006			
Clause	Requirement – Test	Result – Remark	Verdict
22	**CONSTRUCTION**		—
22.2	(Replacement:) Single-pole switches and single-pole protective devices that disconnect heating elements from the supply mains in single-phase, permanently connected class 0I appliances and class I appliances shall be connected to the phase conductor. (IEC/EN 60 335-1/A2: 2006)		N/A
22.5	(Replacement:) No risk of electric shock from a capacitor having a rated capacitance exceeding 0.1 µF when touching the pins of the plug, the appliance being disconnected from the supply at the instant of voltage peak. (IEC/EN 60 335-1/A2: 2006)		N/A
	The voltage shall not exceed 34 V		N/A
22.21	(Addition:) This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements (IEC/EN 60 335-1/A2: 2006)		N/A
22.32	(Addition:)Insulating material in which heating conductors are embedded is considered to be basic insulation and not reinforced insulation. (IEC/EN 60 335-1/A2: 2006)		N/A
22.35	(Replacement:) For constructions other than those of class III, handles, levers and knobs that are held or actuated in normal use shall not become live in the event of a failure of basic insulation (IEC/EN 60 335-1/A2: 2006)		N/A
	If these handles, levers and knobs are of metal and if their shafts or fixings are likely to become live in the event of a failure of basic insulation, they shall be adequately covered by insulating material or their accessible parts shall be separated from their shafts or fixings by supplementary insulation. (IEC/EN 60 335-1/A2: 2006)		N/A
22.40	(Addition:) Unless the appliance can operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation shall be fitted with a switch for stopping the operation of the appliance. The actuating member of this switch shall be easily visible and accessible. (IEC/EN 60 335-1/A2: 2006)		N/A
22.44	(Replacement:) Appliances shall not have an enclosure that is shaped or decorated like a toy. (IEC/EN 60 335-1/A2: 2006)		P

IEC/EN 60 335-1/A2: 2006			
Clause	Requirement – Test	Result – Remark	Verdict
22.49	(Addition:) For remote operation, duration of operation set before the appliance can be started unless the appliance switches off automatically at the end of a cycle or it can operate continuously without giving rise to a hazard. (IEC/EN 60 335-1/A2: 2006)		N/A
22.50	(Addition:) Controls incorporated in the appliance, if any, shall take priority over controls actuated by remote operation. (IEC/EN 60 335-1/A2: 2006)		N/A
22.51	(Addition) A control on the appliance shall be manually adjusted to the setting for remote operation before the appliance can be operated in this mode. There shall be a visual indication on the appliance showing that the appliance is adjusted for remote operation. The manual setting and the visual indication of the remote mode are not necessary on appliances that can - operate continuously, or - operate automatically, or - be operated remotely, without giving rise to a hazard. (IEC/EN 60 335-1/A2: 2006)		N/A
22.52	(Addition:) Socket-outlets on appliances accessible to the user shall be in accordance with the socket-outlet system used in the country in which the appliance is sold. (IEC/EN 60 335-1/A2: 2006)		N/A
24	**COMPONENTS**		—
24.1	(Replacement) Components not tested and found to comply with relevant IEC standard for the number of cycles specified are tested in accordance with 24.1.1 to 24.1.9 (IEC/EN 60 335-1/A2: 2006)		P
	(Addition:) Lampholders and starterholders that have not been previously tested and found to comply with the relevant IEC standard are tested as a part of the appliance and shall additionally comply with the gauging and interchangeability requirements of the relevant IEC standard under the conditions occurring in the appliance. (IEC/EN 60 335-1/A2: 2006)		N/A
24.1.7	(Addition:) If the remote operation of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62 151 (IEC/EN 60 335-1/A2: 2006)	**Covered by IEC/EN 60 335-1/A2: 2006, See appendix 3**	N/A

IEC/EN 60 335-1/A2: 2006			
Clause	Requirement – Test	Result – Remark	Verdict
24.1.8	(Addition:) The relevant standard for thermal links is IEC 60 691. Thermal links that do not comply with IEC 60 691 are considered to be an intentionally weak part for the purposes of Clause 19. (IEC/EN 60 335-1/A2: 2006)		P
24.1.9	(Addition:) Relays, other than motor starting relays, are tested as part of the appliance. However, they are also tested in accordance with Clause 17 of IEC 60 730-1 under the maximum load conditions occurring in the appliance for at least the number of operations in 24.1.4 selected according to the relay function in the appliance. (IEC/EN 60 335-1/A2: 2006)		N/A
25	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS**		—
25.7	(Replacement:) Supply cords shall be one of the following types: (IEC/EN 60 335-1/A2)		—
	– Rubber sheathed (code designation 60 245 IEC 53) (IEC/EN 60 335-1/A2: 2006)		N/A
	– Polychloroprene sheathed (code designation 60 245 IEC 57) (IEC/EN 60 335-1/A2: 2006)		N/A
	– Cross-linked polyvinyl chloride sheathed (code designation 60 245 IEC 87) (IEC/EN 60 335-1/A2: 2006)		N/A
	– Polyvinyl chloride sheathed. These cords shall not be used if they are likely to touch metal parts having a temperature rise exceeding 75 K during the test of Clause 11. Their properties shall be at least those of (IEC/EN 60 335-1/A2: 2006)		—
	•light polyvinyl chloride sheathed cord (code designation 60 227 IEC 52), for appliances having a mass not exceeding 3 kg; (IEC/EN 60 335-1/A2: 2006)		N/A
	•ordinary polyvinyl chloride sheathed cord (code designation 60 227 IEC 53), for other appliances; (IEC/EN 60 335-1/A2: 2006)	H05VV-F	P
	– Heat resistant polyvinyl chloride sheathed. These cords shall not be used for type X attachment other than specially prepared cords. Their properties shall be at least those of (IEC/EN 60 335-1/A2: 2006)		—
	•heat-resistant light polyvinyl chloride sheathed cord (code designation 60 227 IEC 56), for appliances having a mass not exceeding 3 kg; (IEC/EN 60 335-1/A2: 2006)		N/A

IEC/EN 60 335-1/A2: 2006			
Clause	Requirement – Test	Result – Remark	Verdict
	•heat-resistant polyvinyl chloride sheathed cord (code designation 60 227 IEC 57), for other appliances. (IEC/EN 60 335-1/A2: 2006)		N/A
26	**Terminals for external conductors**		—
26.3	(Replacement:) Compliance checked by inspection and by the test of subclause 9.6 of IEC 60 999-1, the torque applied being equal to two-thirds of the torque specified. Nominal diameter of thread (mm); screw category; torque (Nm) (IEC/EN 60 335-1/A2: 2006)		N/A
26.6	(Replacement:) Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm^2): (IEC/EN 60 335-1/A2: 2006)		N/A
27	**Provision for earthing**		—
27.6	(Replacement:) The printed conductors of printed circuit boards not used to provide earthing continuity in hand held appliances (IEC/EN 60 335-1/A2: 2006)		N/A
	They may be used in other appliances if at least two tracks are used with independent soldering points and the appliance complies with requirements of 27.5 for each circuit (IEC/EN 60 335-1/A2: 2006)		N/A
28	**SCREWS AND CONNECTIONS**		—
28.1	(Replacement:) Table 14 the penultimate row: > 4.7 and ≤ 5.3 Torque Nm: 0.8, 2.0, 1.0 (IEC/EN 60 335-1/A2: 2006)		P
28.3	(Replacement:) Thread-cutting (self-tapping) screws and thread roller screws only used for electrical connections if they generate a full form standard machine screw thread. (IEC/EN 60 335-1/A2: 2006)		P
	Such screws not used if they are likely to be operated by the user or installer. (IEC/EN 60 335-1/A2: 2006)		N/A

IEC/EN 60 335-1/A2: 2006			
Clause	Requirement – Test	Result – Remark	Verdict
	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, – during user maintenance, – when replacing a supply cord having a type X attachment, or – during installation. (IEC/EN 60 335-1/A2: 2006)		N/A
	At least two screws must be used for each connection providing earthing continuity unless the screw forms a thread having a length of at least half the diameter of the screw. (IEC/EN 60 335-1/A2: 2006)		N/A
29	**Clearances, creepage distances and solid insulation**		—
	(Replacement:) For coatings used on printed circuits boards to protect the microenvironment (Type 1 coating) or to provide basic insulation (Type 2 coating), annex J applies (IEC/EN 60 335-1/A2: 2006)		N/A
	The microenvironment is pollution degree 1 under Type 1 coating (IEC/EN 60 335-1/A2: 2006)		N/A
	No creepage distance or clearance requirements under Type 2 coating (IEC/EN 60 335-1/A2: 2006)		N/A
29.1.1	(Replacement:) Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage, or cl.14. (IEC/EN 60 335-1/A2: 2006)		N/A
30	**RESISTANCE TO HEAT AND FIRE**		—
30.2	(Replacement:) Parts of non-metallic material resistant to ignition and spread of fire (IEC/EN 60 335-1/A2: 2006)		P
	This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance. (IEC/EN 60 335-1/A2: 2006)		N/A
	Compliance checked by test of 30.2.1 (IEC/EN 60 335-1/A2: 2006)		P

IEC/EN 60 335-1/A2: 2006			
Clause	Requirement – Test	Result – Remark	Verdict
	Appliances for remote operation, 30.2.3 is applicable (IEC/EN 60 335-1/A2: 2006)		N/A
	For based material of printed circuit boards, 30.2.4 is applicable (IEC/EN 60 335-1/A2: 2006)		N/A
	Tests carried out on parts of non-metallic material that have been removed from the appliance (IEC/EN 60 335-1/A2: 2006)		P
	When the glow-wire test is carried out, the parts are placed in the same orientation as they would be in normal use (IEC/EN 60 335-1/A2: 2006)		P
	These tests are not carried out on the insulation of wires (IEC/EN 60 335-1/A2: 2006)		P
30.2.1	(Replacement:) Glow-wire test of IEC 60 695-2-11 at 550 ℃, unless		P
	the material is classified at least HB40 according to IEC 60 695-11-10 (IEC/EN 60 335-1/A2: 2006)		N/A
	Parts for which the glow-wire test cannot be carried out meet the requirements in ISO 9772 for category HBF material (IEC/EN 60 335-1/A2: 2006)		N/A
30.2.2	(Replacement:) Appliances operated while attended, parts of non-metallic supporting current-carrying connections and parts within a distance of 3 mm subjected to the glow-wire test of IEC 60 695-2-11 (IEC/EN 60 335-1/A2: 2006)		N/A
	However, the glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60 695-2-12 of at least: (IEC/EN 60 335-1/A2: 2006)		N/A
	-750 ℃, for connections carrying a current exceeding 0.5 A during normal operation		N/A
	-650 ℃, for other connections		N/A
	Where a non-metallic material is within 3 mm of a current carrying connection, but is shielded from the connection by a different material, the glow-wire test of IEC 60 695-2-11 is carried out at the relevant temperature with the tip of the glow-wire applied to the interposed shielding material with the shielded material in place and not directly to the shielded material. (IEC/EN 60 335-1/A2: 2006)		N/A
	-750 ℃, for connections carrying a current exceeding 0.5 A during normal operation (IEC/EN 60 335-1/A2: 2006)		N/A

IEC/EN 60 335-1/A2: 2006			
Clause	Requirement – Test	Result – Remark	Verdict
	-650 ℃, for other connections (IEC/EN 60 335-1/A2: 2006)		N/A
	Test not applicable to conditions as specified (IEC/EN 60 335-1/A2: 2006)		N/A
30.2.3	(Replacement:) Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2 (IEC/EN 60 335-1/A2: 2006)		—
	Test not applicable to conditions as specified (IEC/EN 60 335-1/A2: 2006)		N/A
30.2.3.1	(Replacement:) Parts of insulating material supporting connections carrying a current exceeding 0.2 A during normal operation, and (IEC/EN 60 335-1/A2: 2006)		N/A
	Parts of non-metallic material within a distance of 3 mm of such connections (IEC/EN 60 335-1/A2: 2006)		N/A
	However, the glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index of at least 850 ℃ according to IEC 60 695-2-12. (IEC/EN 60 335-1/A2: 2006)		N/A
	The glow-wire test is not carried out on small parts that comply with Annex E or classify as V-0 or V-1 according to IEC 60 695-11-10, provided that the sample was not thicker than the relevant part of the appliance. (IEC/EN 60 335-1/A2: 2006)		N/A
30.2.3.2	(Replacement:) Parts of non-metallic material supporting current-carrying connections, and (IEC/EN 60 335-1/A2: 2006)		N/A
	Parts of non-metallic material within a distance of 3 mm, subjected to glow-wire test of IEC 60 695-2-11. (IEC/EN 60 335-1/A2: 2006)		P
	Test not carried out on material having a glow-wire ignition temperature according to IEC 60 695-2-13 of at least: (IEC/EN 60 335-1/A2: 2006)		P
	– 775 ℃, for connections that carry a current exceeding 0.2 A during normal operation,		N/A
	– 675 ℃, for other connections		N/A
	Glow-wire test of IEC 60 695-2-11, the temperature being: (IEC/EN 60 335-1/A2: 2006)		N/A
	-750 ℃, for connections carrying a current exceeding 0.2 A during normal operation		N/A
	-650 ℃, for other connections		P

IEC/EN 60 335-1/A2: 2006			
Clause	Requirement – Test	Result – Remark	Verdict
	Parts that during the test produce a flame persisting longer than 2 s, tested as specified (IEC/EN 60 335-1/A2: 2006)		N/A
	If a flame persists longer than 2 s during the test, parts above the connection, as specified, subjected to the needle-flame test of annex E, unless (IEC/EN 60 335-1/A2: 2006)		N/A
	The material is classified as V-0 or V-1 according to IEC 60 695-11-10 provided that the sample was not thicker than the relevant part of the appliance. (IEC/EN 60 335-1/A2: 2006)		N/A
30.2.4	Base material of printed circuit boards subjected to needle-flame test of annex E (IEC/EN 60 335-1/A2: 2006)	No PCB	N/A
	Test not applicable to conditions as specified (IEC/EN 60 335-1/A2: 2006)		N/A
32	**Radiation, toxicity and similar hazards**		—
	(Replacement:) Appliance does not emit harmful radiation (IEC/EN 60 335-1/A2: 2006)		P
	(Replacement:) Appliance does not present a toxic or similar hazard (IEC/EN 60 335-1/A2: 2006)		P
E	**ANNEX E (NORMATIVE) NEEDLE-FLAME TEST (IEC/EN 60 335-1/A2: 2006)**		
	Needle-flame test carried out in accordance with IEC 60 695-11-5, with the following modifications:		—
7	Severities		—
	(Replacement:) The duration of application of the test flame is 30 s ± 1 s		N/A
9	Test procedure		—
9.1	(Modification:) The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1		N/A
9.2	(Modification:) The first paragraph does not apply		N/A
	(Addition:) If possible, the flame is applied at least 10 mm from a corner		N/A

IEC/EN 60 335-1/A2: 2006			
Clause	Requirement – Test	Result – Remark	Verdict
9.3	(Replacement:) If the specimen does not withstand the test, the test may be repeated on two further specimens, both withstanding the test		N/A
11	Evaluation of test results		—
	(Addition:) The duration of burning not exceeding 30 s		N/A
	(Addition:) However, for printed circuit boards, the duration of burning not exceeding 15 s		N/A
J	**ANNEX J (NORMATIVE) COATED PRINTED CIRCUIT BOARDS (IEC/EN 60 335-1/A2: 2006)**		—
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60 664-3 with the following modifications:		N/A
5.7	Conditioning of the test specimens		—
	When production samples are used, three samples of the printed circuit board are tested		N/A
5.7.1	Cold		—
	The test is carried out at -25 ℃		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
ANNEX EMF			
EN 62 223: 2008			
	The Tested product also complies to the requirements of EN 62 233: 2008		—
	Limit .....100 %	Measured max. : 1.27 %	P

EN 60 335-1/A13: 2008			
Clause	Requirement – Test	Result – Remark	Verdict

Appendix 4: EN 60 335-1/A13: 2008

24	**COMPONENTS**		—
24.1.7	(Replacement :) If the remote operation of the appliance is via a telecommunication network, the relevant standards for the telecommunication interface circuitry in the appliance are EN 41003 and EN 60 950-1:2006, Subclause 6.3.		N/A

IEC 60 3352-80/A2: 2008			
Clause	Requirement – Test	Result – Remark	Verdict

Appendix 5: EN 60 335-2-80/A2: 2008

21.101	(Addition:) The test probe is applied with a force not exceeding 5 N. (IEC 60 335-2-80/A2)		N/A

Appendix 6: **All tables with the test results and photos of the appliances;**

10.1	TABLE: Power input deviation				P
Input deviation of/at:	P rated (W)	P measured (W)	dP (%)	Required dP (%)	Remark
230 V	13	9.4	-27.6	+ 20	P

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

11.8	TABLE: Heating test, thermocouples			P
	Test voltage (V):		220 V x 0.94 = 206.8 V	—
	Ambient (°C):		40	—

Thermocouple locations	dT (K)	Max. dT (K)
Winding	36.1	75
Core	35.6	Ref.
Internal wire	8.6	20
Pressure connector	6.0	35
Cord	0.6	20
Bushing	3.6	20
Cover for motor	7.6	45
Enclosure	4.0	30
Test wall		

	TABLE: Heating test, resistance method			N/A
	Test voltage (V):			—
	Ambient, t_1 (°C):			—
	Ambient, t_2 (°C):			—

Temperature rise of winding	R_1 (Ω)	R_2 (Ω)	dT (K)	Max. dT (K)	Insulation class

11.8	TABLE: Heating test, thermocouples		P
	Test voltage (V):	230 V x 1.06 = 243.8 V	—
	Ambient (°C):	40	—

Thermocouple locations	dT (K)	Max. dT (K)
Winding	43.9	75
Core	41.2	Ref.
Internal wire	8.6	20
Pressure connector	6.0	35
Cord	0.6	20
Bushing	3.6	20
Cover for motor	7.6	45
Enclosure	4.0	30
Test wall		

	TABLE: Heating test, resistance method		N/A
	Test voltage (V):		—
	Ambient, t_1 (°C):		—
	Ambient, t_2 (°C):		—

Temperature rise of winding	R_1 (Ω)	R_2 (Ω)	dT (K)	Max. dT (K)	Insulation class

13.2	TABLE: Leakage current		P
	Heating appliances: 1.15 x rated input:	-	—
	Motor-operated and combined appliances: 1.06 x rated voltage:	230 V x 1.06 = 243.8 V	—

Leakage current between	I (mA)	Max. allowed I (mA)
Live parts between accessible parts (basic)	0.21	3.5

13.3	TABLE: Electric strength		P

Test voltage applied between:	Voltage (V)	Breakdown (Yes/No)
Live parts between accessible parts (basic)	1 000	No
Live parts between accessible parts (supplementary)	1 750	No
Live parts between accessible parts (reinforced)	3 000	No

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

16.2	TABLE: Leakage current		P
	Single phase appliances: 1.06 x rated voltage:	230 V x 1.06 = 243.8 V	—
	Three phase appliances 1.06 x rated voltage divided by √3::	-	—

Leakage current between	I (mA)	Max. allowed I (mA)
Live parts between accessible parts (basic)	0.18	3.5

16.3	TABLE: Electric strength		P
Test voltage applied between:		Voltage (V)	Breakdown (Yes/No)
Live parts between accessible parts (basic)		1 250	No
Live parts between accessible parts (supplementary)		1 750	No
Live parts between accessible parts (reinforced)		3 000	No

17	TABLE: Overload protection, temperature rise		N/A
Temperature rise of part/at:		dT (K)	Max. dT (K)

19.7	TABLE: Abnormal operation, locked rotor/moving parts					P
	Test voltage (V):			230		—
	Ambient, t_1 (°C):			25		—
	Ambient, t_2 (°C):			25		—
Temperature of winding		R_1 (Ω)	R_2 (Ω)	dT (K)	T (°C)	Max. T (°C)
Motor winding		-	-	90.1	115.1	165

19.9	TABLE: Abnormal operation, running overload		N/A
	Test voltage (V):		—
	Ambient, t_1 (°C):		—
	Ambient, t_2 (°C):		—

Temperature of winding	R_1 (Ω)	R_2 (Ω)	dT (K)	T (°C)	Max. T (℃)

19.13	TABLE: Abnormal operation, temperature rises	P

Thermocouple locations	dT (K)	Max. dT (K)
Test wall	0.6	150

24.1	TABLE: Components				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity
Power cord	KMH Co., Ltd.	H05VV-F	3 X 0.75mm²	EN 60 277	VDE
Motor	Dong Woo Industry	DWV-11DRB	220-230 V, 50-60 Hz, Class 120	EN 60 335-1 EN 60 335-2-80	Tested in appliance
Internal wire	Dae Han Lead Master Co., Ltd	Style 1569	300 V, VW-1, 105 ℃	EN 60 335-1 EN 60 335-2-80 & UL 758	Tested in appliance & UL
[1] An asterisk indicates a mark which assures the agreed level of surveillance					

28.1	TABLE: Threaded part torque test		P

Threaded part identification	Diameter of thread (mm)	Column number (I, II, or III)	Applied torque (Nm)
Earthing screw	2.9	II	0.5

29.1	TABLE: Clearances					P
	Overvoltage category:	II				—
		Type of insulation:				
Rated impulse voltage (V):	Min. cl (mm)	Basic	Functional	Supplementary	Reinforced	Verdict / Remark
330	0.5					N/A
500	0.5					N/A
800	0.5					N/A
1 500	0.5					N/A
2 500	**1.5**	X	X	X		P
4 000	**3.0**				X	P
6 000	5.5					N/A
8 000	8.0					N/A
10 000	11.0					N/A

29.2	TABLE: Creepage distances, basic, supplementary and reinforced insulation										P
Working voltage (V)	Creepage distance (mm) Pollution degree										
	1	2			3			Type of insulation			
		Material group			Material group						
		I	II	IIIa/IIIb	I	II	IIIa/IIIb	B*)	S*)	R*)	Verdict
> 50	0.2	0.6	0.9	1.2	1.5	1.7	1.9		—	—	N/A
> 50	0.2	0.6	0.9	1.2	1.5	1.7	1.9	—		—	N/A
> 50	0.4	1.2	1.8	2.4	3.0	3.4	3.8	—	—		N/A
> 50 and ≤ 125	0.3	0.8	1.1	1.5	1.9	2.1	2.4		—	—	N/A
> 50 and ≤ 125	0.3	0.8	1.1	1.5	1.9	2.1	2.4	—		—	N/A
> 50 and ≤ 125	0.6	1.6	2.2	3.0	3.8	4.2	4.8	—	—		N/A
> 125 and ≤ 250	0.6	1.3	1.8	**2.5**	3.2	3.6	4.0	X	—	—	P
> 125 and ≤ 250	0.6	1.3	1.8	**2.5**	3.2	3.6	4.0	—	X	—	P
> 125 and ≤ 250	1.2	2.6	3.6	**5.0**	6.4	7.2	8.0	—	—	X	P
> 250 and ≤ 400	1.0	2.0	2.8	4.0	5.0	5.6	6.3		—	—	N/A
> 250 and ≤ 400	1.0	2.0	2.8	4.0	5.0	5.6	6.3	—		—	N/A
> 250 and ≤ 400	2.0	4.0	5.6	8.0	10.0	11.2	12.6	—	—		N/A
> 400 and ≤ 500	1.3	2.5	3.6	5.0	6.3	7.1	8.0		—	—	N/A
> 400 and ≤ 500	1.3	2.5	3.6	5.0	6.3	7.1	8.0	—		—	N/A
> 400 and ≤ 500	2.6	5.0	7.2	10.0	12.6	14.2	16.0	—	—		N/A
> 500 and ≤ 800	1.8	3.2	4.5	6.3	8.0	9.0	10.0		—	—	N/A
> 500 and ≤ 800	1.8	3.2	4.5	6.3	8.0	9.0	10.0	—		—	N/A
> 500 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

29.2	TABLE: Creepage distances, basic, supplementary and reinforced insulation										P
Working voltage (V)	Creepage distance (mm) Pollution degree										
	1	2			3			Type of insulation			
		Material group			Material group						
		I	II	IIIa/IIIb	I	II	IIIa/IIIb	B*)	S*)	R*)	Verdict
> 2000 and ≤ 2500	7.5	10.0	14.0	20.0	25.0	28.0	32.0		—	—	N/A
> 2000 and ≤ 2500	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 ≤ 10 000	32.0	400	56.0	80.0	100.0	110.0	125.0		—	—	N/A
> 8000 and ≤ 10 000	32.0	40.0	56.0	80.0	100.0	110.0	125.0	—		—	N/A
> 8000 and ≤ 10 000	64.0	80.0	112.0	160.0	200.0	220.0	250.0	—	—		N/A
> 10 000 and ≤ 12 500	40.0	50.0	71.0	100.0	125.0	140.0	160.0		—	—	N/A
> 10 000 and ≤ 12 500	40.0	50.0	71.0	100.0	125.0	140.0	160.0	—		—	N/A
> 10 000 and ≤ 12 500	80.0	100.0	142.0	200.0	250.0	280.0	320.0	—	—		N/A
*), B=Basic, S=Supplementary and R=Reinforced											

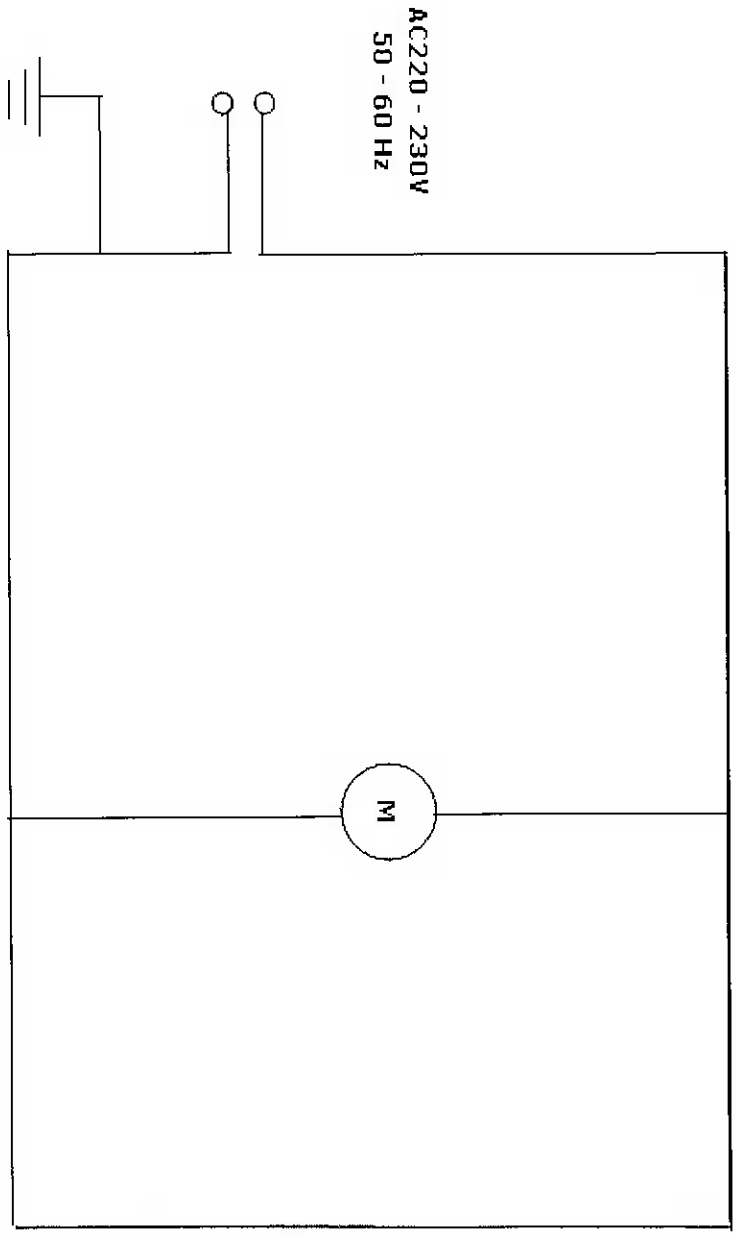
29.2	TABLE: Creepage distances, functional insulation							N/A
Working voltage (V)	Creepage distance (mm) Pollution degree							
	1	2			3			
		Material group			Material group			
		I	II	IIIa/IIIb	I	II	IIIa/IIIb	Verdict / Remark
> 50	0.2	0.6	0.8	1.1	1.4	1.6	1.8	N/A
> 50 and ≤ 125	0.3	0.7	1.0	1.4	1.8	2.0	2.2	N/A
> 125 and ≤ 250	0.4	1.0	1.4	**2.0**	2.5	2.8	3.2	**P**
> 250 and ≤ 400	0.8	1.6	2.2	3.2	4.0	4.5	5.0	N/A
> 400 and ≤ 500	1.0	2.0	2.8	4.0	5.0	5.6	6.3	N/A
> 500 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 ≤ 10 000	32.0	40.0	56.0	80.0	100.0	110.0	125.0	N/A
> 10 000 and ≤ 12 500	40.0	50.0	71.0	100.0	125.0	140.0	160.0	N/A

30.1	TABLE: Ball pressure			P
Part	Test temperature (°C)		Impression diameter (mm)	Allowed impression diameter (mm)
Cover for motor	75		0.6	2
Enclosure	75		0.6	2
Motor enclosure	75		0.8	2
Bobbin for motor	125		1.0	2
Pressure connector	125		0.8	2

30.2	TABLE: Glow Wire		P
Part	Test temperature (°C)	Flames	Result
Cover for motor	550	No	P
Enclosure	550	No	P
Motor enclosure	550	No	P
Bobbin for motor	650	No	P
Pressure connector	650	No	P

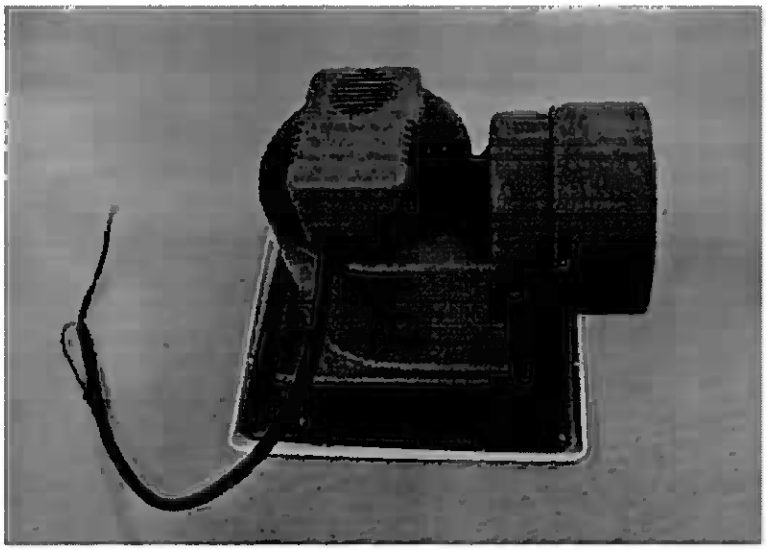
Circuit diagram of the appliance

Model DWV-11DRB & AIRLUKS 250

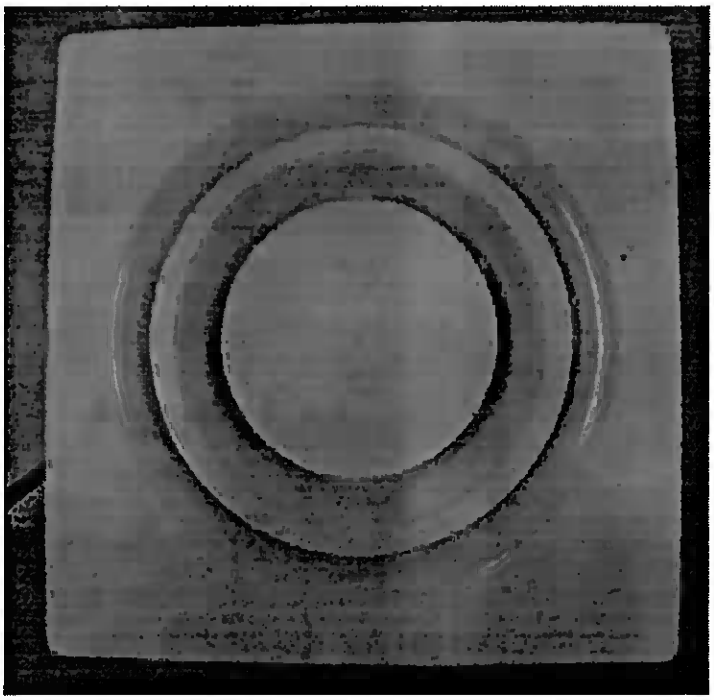


Appendix 6

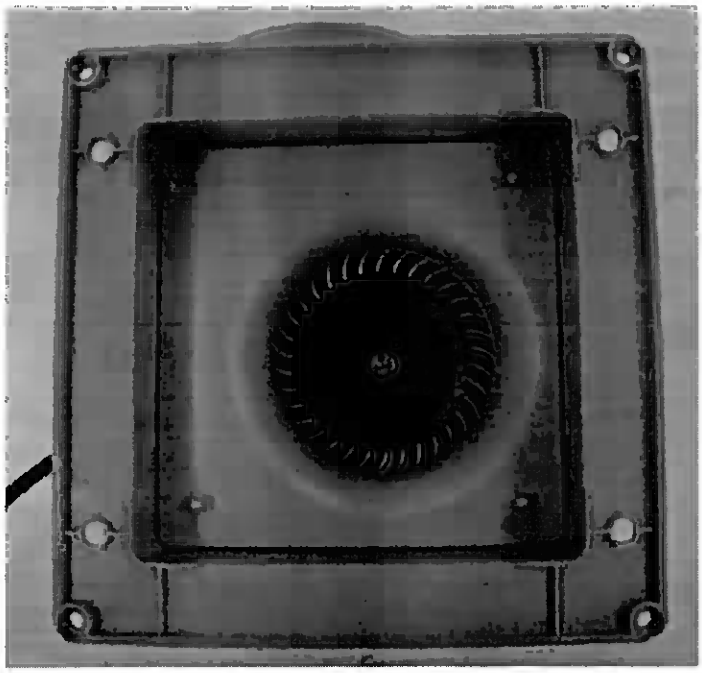
Model DWV-11DRB & AIRLUKS 250



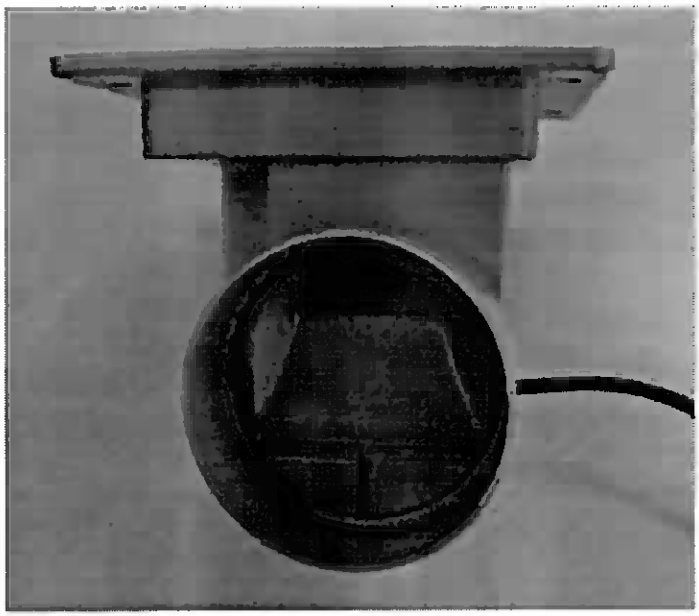
<Top view>



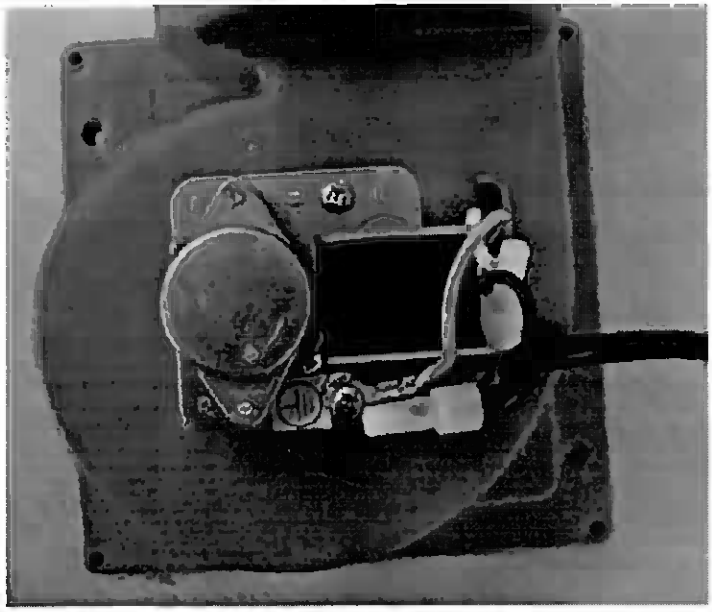
<Front view>



<Top view without blade>



<Outlet view>



<Rear view without cover>