TEST REPORT

EN 60 335-1 1994

Safety of household and similar electrical appliances
Part 1: General requirements

Report

Reference No. ..... : S9963701
Compiled by (+ signature) ..... : E. Tosin - *Supervisor*
Approved by (+ signature) ..... : R. Beghetto - *Laboratory Manager*
Date of issue ..... : 04 / 01 / 2000
Contents ..... : 39 pages

Testing laboratory

Name ..... : CMC Centro Misure Compatibilità S.r.l.
Address ..... : Via S. Maria, 84 - 36030 - Sarcedo (VI) - Italy - tel. fax 0445 / 344184
Testing location ..... : as above

Client

Name ..... : BFT
Address ..... : Via Lago di Vico, 44
..... : 36015 Schio (VI)

Test specification

Standard ..... : EN 60335-1 '94 , EN 60335-1/A11 '95, EN 60335-1/A1 '96, EN 60335-1/A12 '96, EN 60335-1/A13 '98 and EN 60335-1/A14 '98
Procedure deviation ..... : N.A.
..... :

Test item

Description ..... : Piston automation for swing gates
Trademark ..... : BFT
Model and/or type reference ..... : P7
Manufacturer ..... : Same as client
Serial Number ..... : ---
Rating(s) ..... : 230 V 50Hz 250W 1.1A IP55 Capacitor 8µF Push force 8000N Pull force 6500N
..... : Ta=40°C Max. 260 manoeuvres for day Max. 10 consecutive manoeuvres Working-time 56s, pause-time 1s, working-time 56s, rest-time 36 min 43s

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Index

1. Particulars: test item vs. test requirements

Nature of supply ..... : a.c.
Class of protection against electrical shock ..... : Class I
Degree of protection against moisture ..... : IP55
Type of cord attachment ..... : Type Y
Type of mounting ..... : Yes
- building-in ..... : No
- portable ..... : No
- to be fixed to a support ..... : Yes
- hand-held ..... : No
Switch ..... : No
Thermostat ..... : No
Temperature limiter ..... : No
Thermal self-resetting cut-out ..... : Yes
Electronic circuit ..... : No
Programme controller ..... : No
Timer ..... : No
Stationary appliance ..... : Yes
Appliance kept in the hand ..... : No
Appliance continuously loaded by hand ..... : No
Power supply cord provided ..... : Yes
Thermostat without an OFF position ..... : No
Energy regulator without an OFF position ..... : No
Motor with capacitor in auxiliary winding ..... : Yes
Automatic control in flexible cable or cord ..... : No
Series motors incorporated ..... : No
Connection to water supply mains ..... : No
Length of cord < 2 m ..... : Yes
Appliance intended for outdoor use ..... : Yes
Drain hole provided ..... : No
Contact opening ≥ 3 mm in each pole ..... : A Statement in the instructions
Mercury switch provided ..... : No

2. Test case verdicts

Test case does not apply to the test object ..... : N(.A.)

Test item does meet the requirement ..... : P(ass)

Test item does not meet the requirement ..... : F(ail)

Test item is not performed: NE (Not Executed)

3. Testing and sampling

Date of receipt of test item ..... : 21.12.1999

Date of beginning of tests..... : 23.12.1999

Date of end of tests..... : 03.01.2000

..... :

Appliance used for testing was picked up by the manufacturer, at the end of the production process with random criterion

4. General remarks

Results are written following the exactly sequence of the performed measurements.

"(see remark #)" refers to a remark appended to the report.

"(see appended table)" refers to a table appended to the report.

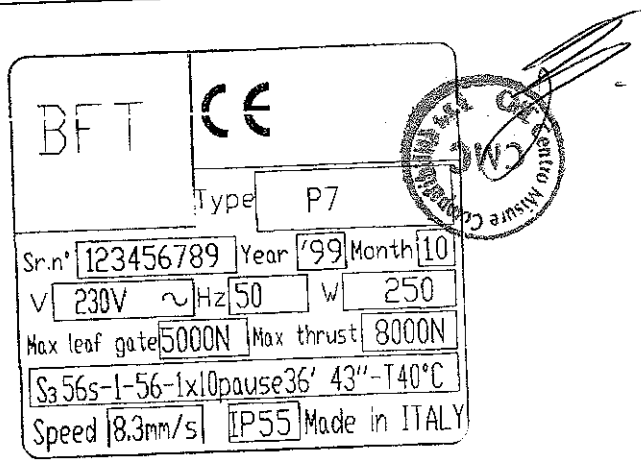
Throughout this report a point is used as decimal separator.

Measurement uncertainty was in accordance with CMC INC_M rev. 3.0 document issued on 15.10.99.

Test reported in this report marked by wording: "Not accredited by SINAL" are not part of the SINAL accreditation of this laboratory

Control unit BFT model Alcor 6

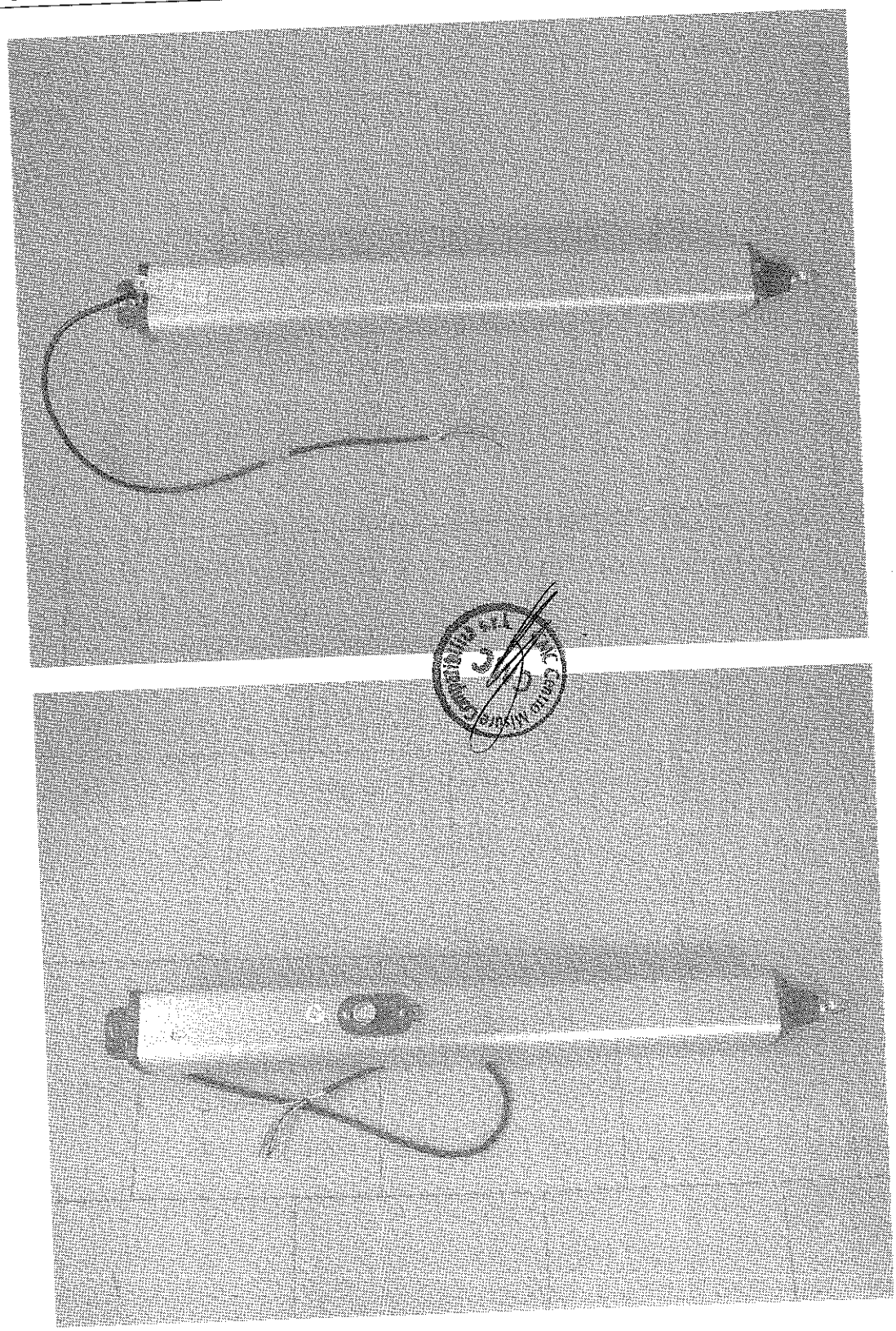
5. Copy of marking plate



6. Equipment list

Equipment	*Model*	*Description*	*Serial number*	*Precision*	*Due date*
CMC B001	SM001	Test pin	---	--	05/2002
CMC B002	SM002	Test probe	---	--	05/2002
CMC B003	SMIP2X	Test finger IPX2	---	--	05/2002
CMC B004	SMIP3X	Straight rigid steel wire of 2.5mm diameter-length 100mm	---	--	05/2002
CMC B005	SMIP4X	Straight rigid steel wire of 1.0mm diameter-length 100mm	---	--	05/2002
CMC B006	HD 8802-TP647/74	Digital thermometer	291096D294	± 2 °C	06/2000
CMC B008	8170 CF	HV tester	1162	Cl. 1	06/2000
CMC B009	8270 CL	Insulation Tester	372	Cl. 1	06/2000
CMC B010	9170 DG	Security circuit res tester	334	Cl. 1	06/2000
CMC B011	1800300	Calliper	---	± 0.05 mm	06/2000
CMC B012	SMIPX5	Hose nozzle IPX5	---	--	06/2001
CMC B013	SMIPX6	Hose nozzle IPX6	---	--	06/2001
CMC B014	SMAIPX56	Test device for hose nozzle	---	--	06/2001
CMC B015	FG-5000	Digital force gauge	L398212	± 0.2 %	06/2000
CMC B016	F22.50	Spring-operated impact-test apparatus	9709349	± 0.02 J	09/2000
CMC B018	Art. N. 02.04	Ball-pressure apparatus	26	--	09/2001
CMC B019	580/25F	Dinamometric screwdriver	7GT035996	± 4 %	06/2000
CMC B020	SM004	Leakage current tester	---	Cl. 0.5	06/2000
CMC B022	34970A	Switch unit and thermocouple	US37005788	± 2 °C	06/2000
CMC B026	UY 245 IU	Climatic chamber	1059.78	± 2 °C	06/2000
CMC B027	Art. N. 01.02-A	Rigid test finger	064/98	--	09/2001
CMC B028	Art. N. 01.10	Test finger nail	065/98	--	09/2001
CMC B029	SM005	Glow Wire Test	---	± 15 °C	06/2000
CMC B031	BF01	Steel Ball	---	--	09/2004
CMC A015	CIP01	IP Chamber IPX1,2,3,4	---	± 5 %	05/2000
CMC A016	CU01	Humidity test chamber	---	± 2 %	05/2000
CMC S005	2503	Power supply analyser	2503592013	± 0.15 %	01/2000
CMC S026	C6530	AC Source	653000095	± 1 %	01/2000
CMC S042	Fluke 73	Multimeter	67771510	± 2.5 %	06/2000

7. Photographs of the appliance



Clause	Requirement - Test	Result - Remark	Verdict
8.	**Report Form EN 60335-1 1994**		
4	**GENERAL CONDITIONS FOR THE TESTS**		P
	Tests performed according to Cl. 4, e.g. nature of supply, sequence of testing, etc.		P
4.8.1	Test frequency (Hz)	50Hz	P
6	**CLASSIFICATION**		P
6.1	Protection against electric shock: Class I, II, III	Class I	P
6.2	Protection against harmful ingress of water	IPX5	P
7	**MARKING**		P
7.1	Rated voltage or voltage range (V)	230V	P
	Single-phase appliances: 230 V covered		P
	Multi-phase appliances: 400 V covered		N
	Nature of supply	~	P
	Rated frequency or frequency range (Hz)	50Hz	P
	Rated input or rated current	250W	P
	Manufacturer's or responsible vendor's name, trademark or identification mark	BFT	P
	Model or type reference	P7	P
	Symbol for Class II		N
	IP number	IP55	P
7.2	Warning for stationary appliances		N
	Warning placed in vicinity of terminal cover		N
7.3	Range of rated values correctly marked		N
7.4	Voltage setting clearly discernible		N
7.5	Marking of rated input for each rated voltage		N
	Marking for upper and lower limits of rated input		P
7.6	Correct symbols used	A statement in the instruction	P
7.7	Correct connection diagram, fixed to the appliance		N
7.8	Not for type Z attachment:		N
	- marking of terminals for the neutral conductor (N)		N
	- marking of earthing terminals		N
	- marking not placed on removable parts		N
	- marking of terminal for single-pole protective device		N
7.9	Marking or placing of switches which may cause a hazard		N

Clause	Requirement - Test	Result - Remark	Verdict
7.10	Indications of switches and regulating devices by use of figures, letters or other		P
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		N
7.11	Indication for direction of adjustment of controls		P
7.12	Instructions for safe use provided		P
	Appliances incorporating batteries which contain materials hazardous to the environment: statement in the instructions how to remove, scrap and dispose of the battery safely		N
	Statement in the instructions that the appliance must be disconnected from the supply		N
7.12.1	Sufficient details for installation or maintenance supplied		P
7.12.2	Means for disconnection with contact separation at least 3 mm		P
	Stationary appliance with supply cord and plug: statement in the instructions that the appliance is so positioned that the plug is accessible		N
7.12.3	Insulation in contact with parts exceeding 50 K; instruction		N
7.12.4	Information with regard to building-in:		N
	- dimensions of space		N
	- dimensions and position of support		N
	- ventilation openings		N
	- connection/interconnection plug accessible		N
7.12.5	Replacement cord, type X attachment		N
	Replacement cord, type Y attachment		P
	Replacement cord, type Z attachment		N
7.13	Instructions and other texts in official language	Only Italian version checked	P
7.14	Marking easily legible and durable		P
7.15	Marking on a main part		P
	Marking clearly discernible from outside		P
	Stationary appliance: name or trademark and model or type reference visible after installation		P
	Indication for switches and controls in vicinity of components; not on removable parts if misleading		N
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		P
8	**PROTECTION AGAINST ACCESSIBILITY TO LIVE PARTS**		P
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	All positions; detachable parts removed		N
	Removal of lamps: protection against contact with live parts		P
	Use of test finger: no contact with live parts		

Clause	Requirement - Test	Result - Remark	Verdict
8.1.2	Use of test pin: no contact with live parts		N
8.1.3	Use of test probe: no contact with live parts of visible glowing heating elements		N
8.1.4	Accessible part not considered live if:		N
	- extra-low a.c. voltage: peak values not exceeding 42,4 V		N
	- extra-low d.c. voltage: not exceeding 42,4 V		N
	- or separated from live parts by protective impedance, d.c. current not exceeding 2 mA		N
	- or separated from live parts by protective impedance, a.c. peak value not exceeding 0,7 mA		N
	- for peak value 42,4 V up to and including 450 V capacitance not exceeding 0,1 µF		N
	- for peak value 450 V up to and including 15 kV, the discharge shall not exceed 45 µC		N
8.1.5	Live parts protected at least by basic insulation before installation or assembly (checked by inspection and the test of 8.1.1):		P
	- built-in appliances		N
	- fixed appliances		P
	- separate units		N
8.2	Class II appliances and constructions adequately protected against accidental contact with basic insulation and metal parts separated from live parts with only basic insulation		N
	Only possible to touch parts separated from live parts by double or reinforced insulation		N
	Appliances with batteries replaceable by the user, basic insulation between live parts and the inner surface of the battery compartment adequate		N
	If appliance can be operated without batteries: double or reinforced insulation used		N
10	**POWER INPUT AND CURRENT**		P
10.1	Power input at rated voltage and normal operating temperature not deviating from rated input by more than shown in table	(see appended table)	P
10.2	Current at normal operating temperature not deviating from rated current by more than shown in table		N
11	**HEATING**		P
11.1	No excessive temperatures in normal use		P
11.2	Placing and mounting of appliance as described:		P
	- built-in		N
	- against a wall		N
	- suspended in still air		N
	- on the floor or table		N
	- fixed to a ceiling		N
	- on its stand		P

Clause	Requirement - Test	Result - Remark	Verdict
11.3	Temperature rises determined by thermocouples or resistance method		P
11.4	Heating appliances operated under normal operation at 1,15 times rated power input		N
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage		P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage		N
11.7	Appliances are operated for a duration corresponding to the most unfavourable conditions of normal use		P
11.8	Protective devices do not operate		P
	Sealing compound not flowing out		P
	Temperatures not exceeding values in table 3	(see appended table and graph)	P
13	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		P
13.1	Leakage current not excessive and electric strength adequate		P
13.2	Leakage current measured by means of circuit described in Annex G		P
	Leakage current measurements	(see appended table)	P
13.3	Electric strength test of insulation	(see appended table)	P
	No breakdown during the test		P
15	**MOISTURE RESISTANCE**		P
15.1	Enclosure provides the degree of moisture protection according to classification of appliance (tests 15.1.1 and 15.1.2)	IPX5	P
	Withstand electric strength test specified in 16.3		P
	No trace of water on insulation which can result in a reduction of distances and clearances below values specified in 29.1		P
15.1.1	Appliance subjected to test as specified		N
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N
	Built-in appliance installed according to the manufacturer's instruction		P
	Other appliances tested as specified		N
15.2	Spillage of liquid does not affect the electrical insulation		N
	Overfilling test with additional amount of liquid		N
	Withstand electric strength test in 16.3		N
	No trace of water on insulation which can result in reduction of distances and clearances below values specified in 29.1		P
15.3	Humidity treatment for 48 h		P
	Withstanding the test of Cl. 16		P
16	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		P
16.1	No excessive leakage current and adequate insulation and electric strength (tests 16.2 and 16.3)	(see appended table)	P
16.2	Leakage current measurements		

Clause	Requirement - Test	Result - Remark	Verdict
16.3	Electric strength tests (values in table 5)	(see appended table)	P
17	**OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS**		N
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use		N
	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
	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
	Temperature of the winding not exceeding the value specified in table 6		N
19	**ABNORMAL OPERATION**		P
19.1	The risk of fire or mechanical damage under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe		N
19.2	Appliances with heating elements: test conditions as in Cl. 11, with restricted heat dissipation; test voltage (V): power input of 0,85 times rated power input		N
19.3	Test of 19.2 repeated; test voltage (V): power input of 1,24 times rated power input		N
19.4	Test conditions as in Cl. 11, the power input being 1,15 times rated power input, any control limiting the temperature during tests of Cl. 11 short-circuited		N
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
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N
19.6	Appliances with PTC heating elements tested as specified. Supplied at rated voltage, establishing steady conditions, then the voltage increased in steps by 5% until 1,5 times rated voltage is reached or until the heating element ruptures		N
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque or locking moving parts		P
	Locked rotor, motor capacitors open circuited or short-circuited, if required		P
	Appliances with timer or controller supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed	TL = 132 s	P
	Test period at rated voltage (s or min) or until steady state conditions established		N
	Winding temperatures not exceeding limiting temperature; type of appliance; insulation class; measured temperature (°C)	(see appended table)	P
19.8	Three-phase motors operated at rated voltage with one phase disconnected		N
19.9	Running overload test of appliance incorporating motors at rated voltage; motor windings insulation class; measured temperature (°C); allowed temperature (°C)	(see appended table)	P
19.10	Series motor operated at 1,3 times rated voltage for 1 min		N

Clause	Requirement - Test	Result - Remark	Verdict
	Parts not ejected from the appliance during test		N
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
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:		N
	- 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
	- 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
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:		N
	a) short-circuit of creepage distances and clearances between live parts of different potential, if these distances are less than the values specified in 29.1, unless the relevant part is adequately encapsulated		N
	b) open circuit at the terminals of any component		N
	c) short-circuit of capacitors, unless they comply with IEC 384-14 or 14.2 of IEC 65		N
	d) short-circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition is not applied between the circuits of an optocoupler		N
	e) failure of triacs in the diode mode		N
	f) failure of an integrated circuit. In this case 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
	During and after each test the following is checked:		N
	- the temperature rise of the windings do not exceed the values specified in table 6		N
	- the appliance complies with the conditions specified in 19.13		N
	- live parts not accessible to the test finger or test pin as specified in Cl. 8		N
	- any current flowing through protective impedance not exceeding the limits specified in 8.14		N
	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:		N
	- the material of the printed circuit board withstands the burning test of 20.1 of IEC 65		N
	- any loosened conductor does not reduce the creepage distances or clearances between live part and accessible metal parts		N
	- the appliance withstands the tests of 19.11.2 with open circuited conductor bridged		N
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 127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A)		N

Clause	Requirement - Test	Result - Remark	Verdict
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 7	(see appended table)	P
	Enclosures not deformed to such an extent that compliance with Cl. 8 is impaired		P
	Appliance still operable and complying with 20.2		P
	Appliance, other than Class III, withstands the electric strength test of 16.3, however, the test voltage being:		P
	- basic insulation: 1000 V		P
	- supplementary insulation: 2750 V		N
	- reinforced insulation: 3750 V		N
20	**STABILITY AND MECHANICAL HAZARDS**		P
20.1	Adequate stability		N
	Tilting test through an angle of 10° (appliance placed on an inclined plane/horizontal plane); appliance does not overturn		N
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 7		N
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury		P
	Protective enclosures, guards and similar parts are non-detachable		P
	Adequate mechanical strength and fixing of protective enclosures		P
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard, if unexpectedly reclosed		P
	Not possible to touch dangerous moving parts with test finger		P
21	**MECHANICAL STRENGTH**		P
	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		N
	If necessary, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N
	If necessary, repetition of groups of three blows on a new sample		P
22	**CONSTRUCTION**	IP5X	NE
22.1	Appliance marked with the first numeral of the IP system: relevant requirements of IEC 529 are fulfilled		P
22.2	Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:		N
	- a supply cord fitted with a plug		N
	- a switch complying with 24.3		P
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided		

Clause	Requirement - Test	Result - Remark	Verdict
	- an appliance coupler		N
	Single-phase Class I appliance with heating elements, intended to be permanently connected to fixed wiring, incorporating single-pole switches or single-pole protective devices for the disconnection of the heating element(s): the switches/devices being connected in the phase conductor		N
22.3	Appliance provided with pins: no undue strain on socket-outlets		N
	Applied torque not exceeding 0,25 Nm		N
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		P
22.5	No risk of electric shock when touching the pins of the plug		N
22.6	Electrical insulation not affected by condensing water or leaking liquid		P
	Electrical insulation of Class II appliances not affected in case of a hose rupture or seal leak		N
22.7	Adequate safeguards against the risk of excessive pressure in appliances provided with steam-producing devices		N
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 which are likely to be cleaned in normal use		P
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances		N
	Adequate insulating properties of oil or grease to which insulation is exposed		P
22.10	Location or protection of reset buttons of non-self-resetting controls is so that accidental resetting is unlikely		N
22.11	Reliable fixing of non-detachable parts which provide the necessary degree of protection against electric shock, moisture or contact with moving parts		P
	Obvious locked position of snap-in devices used for fixing such parts		N
	No deterioration of the fixing properties of snap-in devices used in parts which are likely to be removed during installation or servicing		N
	Tests	Push 50N, pull 50N and torque 4 Nm	P
22.12	Handles, knobs etc. fixed in a reliable manner		P
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		N
	Axial force 15 N applied to parts, the shape of which being so that an axial pull is unlikely to be applied		N
	Axial force 30 N applied to parts, the shape of which being so that an axial pull is likely to be applied		P
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
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

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
	Cord reel tested with 6000 operations, as specified		N
	Electric strength test of 16.3, voltage of 1000 V applied		N
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N
22.18	Current-carrying parts and other metal parts resistant to corrosion under normal conditions of use		P
22.19	Driving belts not used as electrical insulation		N
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible		N
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless impregnated		P
22.22	Appliance shall not contain asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements adequately supported		N
	In case of rupture, the heating conductor is unlikely to come in contact with earthed metal parts or accessible metal parts		N
22.25	Sagging heating conductors cannot come into contact with accessible metal parts		N
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
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N
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
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of protection against electric shock is maintained after installation		N
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		N
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		N
22.31	Creepage distances and clearances over supplementary and reinforced insulation not reduced below values specified in 29.1 as a result of wear		N
	Creepage distances and clearances over supplementary or reinforced insulation not reduced to less than 50% of values specified in 29.1 if wires, screws etc. becomes loose		N
22.32	Supplementary and reinforced insulation designed or protected against deposition of dirt or dust		P
	Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation		

Clause	Requirement - Test	Result - Remark	Verdict
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.1		N
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N
22.33	Conductive liquids which are or may become accessible in normal use are not in direct contact with live parts		P
	Conductive liquids are not in direct contact with basic insulation or reinforced insulation in Class II constructions		N
22.34	Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed		P
22.35	Handles, levers and knobs, held or actuated in normal use, not becoming live in the event of an insulation fault		P
	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
	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		P
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
22.37	Capacitors in Class II appliances not connected to accessible metal parts, unless complying with 22.42		N
	Metal casings of capacitors in Class II appliances separated from accessible metal parts by supplementary insulation, unless complying with 22.42		N
22.38	Capacitors not connected between the contacts of a thermal cut-out		P
22.39	Lamp holders only used for the connection of lamps		N
22.40	Motor-operated appliances and combined appliances, intended to be moved while in operation or which have accessible moving parts, are fitted with a switch to control the motor		N
	The actuating member of this switch easily visible and accessible		N
22.41	Appliances shall not incorporate components containing liquid mercury		P
22.42	Protective impedance consisting of at least two separate components		N
	Values specified in 8.1.4 not exceeded if any one of the components is short-circuited or open circuited		N
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N
22.Z1	Appliance enclosure not shaped and decorated so that the appliance is likely to be treated as a toy by children		P
22.Z2	Fully halogenated chlorofluorocarbons (CFC's) not used		P
23	**INTERNAL WIRING**		P
23.1	Wireways smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		P

Clause	Requirement - Test	Result - Remark	Verdict
	Wire holes in metal well rounded or provided with bushings		P
	Wiring effectively prevented from coming into contact with moving parts		P
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges or corners		N
	Beads inside flexible metal conduits contained within an insulating sleeve		N
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		P
	Flexible metallic tubes not causing damage to insulation of conductors		N
	Open-coil springs not used		P
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N
	No damage after 10 000 flexings		N
	Electric strength test, 1000 V between live parts and metal parts		N
23.4	Bare internal wiring sufficiently rigid and fixed		N
23.5	The basic 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		P
23.7	Only the colour combination green/yellow used 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		P
	clamping means so constructed that there is no risk of bad contact due to cold flow of the solder		N
24	**COMPONENTS**		P
24.1	Components comply with safety requirements in relevant IEC standards	(see appended table)	P
	List of components	(see appended table)	P
24.1.1	Capacitors likely to be subjected to the supply mains voltage and used for radio interference suppression or voltage dividing, comply with Annex ZC		N
	Small lampholders: compliance with requirements for E10 lampholders		N
	Safety isolating transformers comply with IEC 742		N
	Safety isolating transformers tested with the appliance comply with Annex ZD		N
	Appliance couplers for IPX0 appliances: compliance with IEC 320		N
	Other appliance couplers: compliance with IEC 309		N
	Automatic controls: compliance with IEC 730, unless tested with the appliance		P

Clause	Requirement - Test	Result - Remark	Verdict
	Switches: compliance with IEC 1058, unless tested with the appliance		N
24.1.2	Automatic controls complying with IEC 730: additional tests according to this standard and 11.3.5 to 11.3.8 and Cl. 17 of IEC 730 as type 1 controls, the cycles of operation being:		P
	- thermostats: 10 000		N
	- temperature limiters: 1000		N
	- self-resetting thermal cut-outs: 300		P
	- non-self-resetting thermal cut-outs: 30		N
	- energy regulators: 3000		N
	- timers: 10 000		N
24.1.3	For switches, the test of 17.2.7 of IEC 1058-1 carried out for 10 000 cycles of operation		N
	Switches not separately tested and found to comply with IEC 1058-1 under conditions covering those occurring in the appliance, comply with Annex ZE		N
	Switches for no-load-operation and operable only with the aid of a tool, are not subjected to the tests of Cl. 17 of IEC 1058-1		N
	This applies also to switches operated by hand, and with interlock for no-load-operation		N
	Switches without this interlock subjected to the test of 17.2.7 of IEC 1058-1 for 100 cycles of operation		P
24.1.4	Components marked with their operating characteristics are used in the appliance in accordance with these markings		P
	Components which have to comply with other standards are tested separately, according to the relevant standard		N
	Components used within the limits of its marking, tested in accordance with conditions occurring in the appliance		N
	Components not marked, or not used in accordance with its marking, or no IEC standard exists, tested under the conditions occurring in the appliance		N
	Components not mentioned in table 3 tested as part of the appliance	425V	P
24.1.5	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load		P
24.2	No switches or automatic controls in flexible cords		P
	No devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		P
	No thermal cut-outs which can be reset by soldering		N
24.3	Switch intended for all-pole disconnection of stationary appliances is directly connected to the supply terminals, having a contact separation of at least 3 mm in each pole		N
24.4	Plugs and socket-outlets for heating elements and extra-low voltage circuits, not interchangeable with plugs, and		N
	socket-outlets or with connectors and appliance inlets complying with IEC 83 or IEC 320, respectively		

Clause	Requirement - Test	Result - Remark	Verdict
24.5	Plugs and socket-outlets etc. for interconnection cords, not interchangeable with plugs and socket-outlets or connectors and appliance inlets complying with IEC 83 or IEC 320, respectively, if direct supply from the mains could give rise to a hazard		N
24.6	Motors connected to the supply mains and having inadequate basic insulation for the rated voltage of the appliance, comply with the requirements of Annex F		N
25	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS**		P
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		N
	- supply cord fitted with a plug		N
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance		N
	- pins for insertion into socket-outlets		N
25.2	Appliance not provided with more than one means of connection to the supply		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
25.3	Connection of supply wires for appliance intended to be permanently connected to fixed wiring possible after the appliance has been fixed to its support	Supply cord fitted without plug	P
	Appliance provided with a set of terminals for the connection of cables of fixed wiring, cross-sectional areas specified in 26.2		N
	Appliance provided with a set of terminals allowing the connection of a flexible cord		N
	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
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimensions according to table 8		N
	Introduction of conduit or cable does not affect the protection against electric shock or reduce creepage distances and clearances below values specified in 29.1		N
25.5	Method for assemble supply cord with the appliance:		P
	- type X attachment		N
	- type Y attachment		P
	- type Z attachment, if allowed in part 2		N
	Type X attachment other than those with a specially prepared cord, shall not be used for flat twin tinsel cords		N
25.6	Plugs fitted with only one flexible cord		N
	Supply cords of single-phase portable appliances having a rated current not exceeding 16 A, provided with a plug complying with the following Standard Sheets of IEC 83:		N
	- for Class I appliances: Standard Sheet C2b, C3b or C4		N
	- for Class II appliances: Standard Sheet C5 or C6		N

Clause	Requirement - Test	Result - Remark	Verdict
25.7	Appliance supply cord not lighter than:		P
	- braided cord (245 IEC 51)		N
	- ordinary tough rubber sheathed cord (245 IEC 53)		N
	- ordinary polychloroprene sheathed flexible cord (245 IEC 57)	A05RN-F	P
	- flat twin tinsel cord (227 IEC 41)		N
	- light polyvinyl chloride sheathed cord (227 IEC 52), appliance not exceeding 3 kg		N
	- ordinary polyvinyl chloride sheathed cord (227 IEC 53), appliance exceeding 3 kg		N
	- rubber insulated and sheathed cords (60245 IEC 86)		N
	- rubber insulated crosslinked PVC sheathed cord (60245 IEC 87)		N
	- crosslinked PVC insulated and sheathed cord (60245 IEC 88)		N
	Temperature rise of external metal parts exceeding 75 K, PVC cord not used		N
	PVC cord used: appliance so constructed that the supply cord is not likely to touch external metal parts in normal use		N
	PVC supply cord appropriate for higher temperatures, type Y or type Z attachment used		N
25.8	Nominal cross-sectional area of supply cords according to table 9; rated current (A); cross-sectional area (mm^2)	1A 4x0.75 mm^2	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		P
	clamping means so constructed that there is no risk of bad contacts due to cold flow of the solder		N
25.12	Moulding the cord to part of the enclosure does not damage the insulation of the supply cord		P
25.13	Inlet opening provided with a bushing, or is so constructed, that there is no risk of damage to the supply cord when introduced		P
25.13.1	Inlet bushing so shaped as to prevent damage to the supply cord		P
	Inlet bushing not detachable		P
25.13.2	At inlet openings, the insulation between the conductor of a supply cord and the enclosure of the appliance is consisting of the insulation of the conductor, and in addition:		P
	- for Class 0 appliances: at least one separate insulation		N
	- for other appliances: at least two separate insulations		P
	Only one separate insulation is required if the enclosure at the inlet opening is of insulating material		N
	The separate insulation consists of:		P
	- the sheath of a supply cord at least equivalent to that of a cord complying with IEC 227 or 245		P
	- a lining or bushing of insulating material complying with the requirements of 29.2 for supplementary insulation		P

Clause	Requirement - Test	Result - Remark	Verdict
25.14	Supply cords adequately protected against excessive flexing		N
	Flexing test; applied force (N); number of flexings		N
	The test does not result in:		N
	- short-circuit between the conductors		N
	- breakage of more than 10% of the strands of any conductor		N
	- separation of the conductor from its terminal		N
	- loosening of any cord guard		N
	- damage, within the meaning of the standard, to the cord or the cord guard		N
	- broken strands piercing the insulation and becoming accessible		N
25.15	Conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorages		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 (Nm) (not on automatic cord reel)	Pull 100N, torque 0.35 Nm	P
	Max. 2 mm displacement of the cord, and conductors not moved more than 1 mm in the terminals		P
	Creepage distances and clearances not reduced below values specified in 29.1		P
25.16	Cord anchorages for type X attachments so constructed and located that:		N
	- replacement of the cord is easily possible		N
	- it is clear how the relief from strain and the prevention of twisting are obtained		N
	- they are suitable for different types of cord		N
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from		N
	- accessible metal parts by supplementary insulation		N
	- the cord is not clamped by a metal screw which bears directly on the cord		N
	- at least one part of the cord anchorage securely fixed to the appliance, unless part of a specially prepared cord		N
	- screws which have to be operated when replacing the cord do not fix any other component, if applicable		N
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N
	- 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
	- for Class II appliances: they are of insulating material, or if of metal, they are insulated from accessible metal parts by supplementary insulation		N
25.17	Adequate cord anchorages for type Y and Z attachment		P
25.18	Cord anchorages only accessible with the aid of a tool, or		N

Clause	Requirement - Test	Result - Remark	Verdict
	so constructed that the cord only can be fitted with the aid of a tool		P
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N
	Tying the cord into a knot or tying the cord with string not used		N
25.20	Conductors of the supply cord for type Y and Z attachment adequately additionally insulated		P
25.21	Space for supply cable for fixed wiring or supply cord for type X attachment constructed to permit checking of conductors with respect to correct positioning and connection before fitting any cover, no risk of damage, no contact with accessible metal parts if a conductor becomes loose, etc.		N
	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
25.22	Appliance inlet:		N
	- live parts not accessible during insertion or removal		N
	- connector can be inserted without difficulty		N
	- the appliance is not supported by the connector		N
	- is not for cold conditions if temperature rise of external metal parts exceeds 75 K, unless the supply cord is not likely to touch such metal parts		N
25.23	Interconnection cords comply with the requirements for the supply cord, except as specified		N
	If necessary, electric strength test of 16.3		N
25.24	Detachable interconnection cords: no live parts accessible when connection is disconnected		N
25.25	Interconnection cords not detachable without the aid of a tool		N
26	**TERMINALS FOR EXTERNAL CONDUCTORS**		P
26.1.1	Appliances with type X attachment and appliances for connection to fixed wiring provided with terminals in which connection is made by means of screws, nuts or equally effective devices	Screws connexion	P
	Screws and nuts serve only to clamp supply conductors, except		P
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N
26.1.2	For type X attachment soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone		N
	Soldering alone used, barriers provided, creepage distances and clearances satisfactory if the conductor becomes free		N
	For type Y and Z attachment: soldered, welded, crimped and similar connections used		N
	For Class II appliances: the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N
	For Class II appliances: soldering, welding or crimping alone used, barriers provided, creepage distances and clearances satisfactory if the conductor becomes free		N

Clause	Requirement - Test	Result - Remark	Verdict
26.2	Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to table 11; rated current (A); nominal cross-sectional area (mm^2)		N
	Terminals only suitable for a specially prepared cord		P
26.3	Terminals for the supply cord suitable for their purpose		P
	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		P
	Pull test of 5 N to the connection		P
26.4	Terminals for type X attachment and those for connection to fixed wiring so fixed that when tightening or loosening the clamping means:		P
	- the terminal does not loosen		P
	- internal wiring is not subjected to stress		P
	- creepage distances and clearances are not reduced below the values in 29.1		P
26.5	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		P
26.6	Terminals for type X attachment, no special preparation of conductors required, and so constructed and placed that conductors prevented from slipping out, except those with a specially prepared cord and those for connection to fixed wiring		P
26.7	Terminals of the pillar type constructed and located as specified		P
26.8	Terminals for the connection to fixed wiring located close to each other, including the earthing terminal		P
26.9	Terminals for type X attachment accessible after removal of a cover or part of the enclosure		N
26.10	Terminals not accessible without the aid of a tool		P
26.11	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection between live parts and accessible metal parts,		N
	and for Class II construction, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N
	Stranded conductor test, 8 mm insulation removed		N
27	**PROVISION FOR EARTHING**		P
27.1	Accessible metal parts of Class 0I and I appliances, permanently and reliably connected to an earthing terminal		P
	Earthing terminals not connected to neutral terminal		P
	Class 0, II and III appliance have no provision for earthing		N
27.2	Screw clamping terminals comply with Cl. 26		P
	Screwless terminals comply with IEC 998-2-2		N
	Terminals used for the connection of external equipotential bonding conductors allow connection of conductors of 2,5 to 6 mm^2, and		N
	do not provide earthing continuity between different parts of the appliance		N

Clause	Requirement - Test	Result - Remark	Verdict
	Conductors cannot be loosened without the aid of a tool		N
	Clamping means adequately secured against accidental loosening		P
27.3	Earth connection "made before" and "separated after" current-carrying connections		N
	Current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		P
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		P
	Parts of steel providing earthing continuity provided at the essential areas with an electroplated coating, thickness at least 5 µm		P
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		P
	In case of aluminium alloys precautions taken to avoid risk of corrosion		P
27.5	Low resistance of connection between earthing terminal and earthed metal parts		P
	Resistance not exceeding 0,1 Ω at the specified low-resistance test		P
27.Z1	In hand-held appliances printed conductors of printed circuit boards not used to provide earthing continuity		N
	In other appliances at least two tracks are used with independent soldering points, and		N
	the appliance complies with the requirements of 27.5 for each circuit, and		N
	the material of the printed board complies with IEC 249-2-4 or IEC 249-2-5		N
28	**SCREWS AND CONNECTIONS**		P
28.1	Fixings and electrical connections 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
	Screws of insulating material not used for any electrical connection		P
	Screws transmitting electrical contact only screwing into metal		P
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		P
	Type X attachment, screws to be removed for replacement of supply cord, or for users maintenance, not of insulating material if their replacement by a metal screw can impair basic insulation		N
	Screws and nuts transmitting contact pressure subjected to torque test as specified, applying torque as shown in table 12	(see appended table)	P
	The test is not carried out on screws and nuts transmitting contact pressure for earthing continuity provided at least two screws or nuts are used		P
28.2	Contact pressure not transmitted through insulating material liable to shrink or distort, unless shrinkage or distortion compensated		P
	This requirement does not apply to electrical connections in circuits carrying a current not exceeding 0,5 A		N

Clause	Requirement - Test	Result - Remark	Verdict
28.3	Space-threaded (sheet metal) screws only used for the connection of current-carrying parts if they clamp these parts directly in contact with each other		P
	Thread-cutting (self-tapping) screws not used for electrical connection of current-carrying parts, unless generating a full form standard machine screw thread		P
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer unless the thread is formed by a swaging action		N
	Use of thread-cutting and space-threaded screws for earthing continuity according to specification		P
28.4	Screws and nuts making mechanical connection between different parts of the appliance, and also making electrical connection or providing earthing continuity secured against loosening		P
	Rivets for current-carrying connections subject to torsion secured against loosening		N
29	**CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH INSULATION**		P
29.1	Creepage distances and clearances not less than specified in table 13	(see appended table)	P
	Resonant voltage between the point where a winding and a capacitor are connected together and metal parts separated from live parts by basic insulation only, creepage distances and clearances not less than the values specified for the value of the voltage produced by the resonance		N
	Values increased by 4 mm in case of reinforced insulation when resonance voltage		N
29.2	Distances through insulation not less than 1,0 mm for supplementary insulation, and 2,0 mm for reinforced insulation		P
29.2.1	Supplementary insulation applied in thin sheet form, 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 for supplementary insulation		N
	Reinforced insulation applied in thin sheet form, other than mica or similar scaly material, consists of at least three layers, and any two of the layers together withstand the electric strength test of 16.3 for reinforced insulation		N
29.2.2	Supplementary or reinforced insulation inaccessible and does not exceed the maximum permissible temperature values		N
	Supplementary or reinforced insulation, after conditioning as specified, withstands the electric strength test as specified in 16.3, both at the oven temperature and room temperature		N
30	**RESISTANCE TO HEAT, FIRE AND TRACKING**		P
30.1	See Annex H		P
	Relevant external parts of non-metallic material		N
	Parts supporting live parts and parts providing supplementary or reinforced insulation sufficiently resistant to heat		N
	Ball-pressure test with a force of 20 N, diameter of impression not exceeding 2 mm	(see appended table)	N
30.2	Relevant parts of non-metallic material adequately resistant to ignition and spread of fire		P
30.2.1	Possible burning test of relevant parts according to Annex J		N

Clause	Requirement - Test	Result - Remark	Verdict
	Glow-wire test of Annex K made at temperature 550 °C	(see appended table)	P
30.2.2	Appliances operated while attended, parts of insulating material supporting connections carrying a current exceeding 0,5 A in normal operation, subjected to the glow-wire test of Annex K at 650 °C		N
30.2.3	Appliances operated while unattended, possible bad-connection test according to Annex L		N
	Glow-wire test of Annex K made at 850 °C		N
	Possible needle-flame test according to Annex M		N
30.2.4	Parts of non-metallic material within a distance of 50 mm from parts not withstanding the tests of 30.2.2 or 30.2.3, subjected to the needle-flame test of Annex M		N
30.3 ⊗	Relevant insulating material have adequate resistance to tracking		NE
	Tracking test at 175 V according to Annex N		NE
	Tracking test at 250 V according to Annex N		NE
	No hazard other than fire, tracking test at 175 V according to Annex N, and in addition needle-flame test of surrounding parts according to Annex M		NE
	Possible needle-flame test of non-metallic material		NE
31	**RESISTANCE TO RUSTING**		P
	Relevant ferrous parts adequately protected against rusting		P
32	**RADIATION, TOXICITY AND SIMILAR HAZARDS**		P
	Appliance does not emit harmful radiation		P
	Appliance does not present a toxic or similar hazard		P
A	**ANNEX A, NORMATIVE REFERENCES**		P
	The annex contains a list of standards which are referred to, and thus become part of, this standard		P
B	**ANNEX°B, APPLIANCES POWERED BY RECHARGEABLE BATTERIES**		N
	This annex applies to appliances powered by rechargeable batteries which are recharged in the appliance.		N
	All clauses of this standard apply unless otherwise specified in this annex		N
B.4	General conditions for the tests		N
B.4.101	Unless otherwise specified, when appliances are supplied from the supply mains they are tested as specified for motor-operated appliances		N
B.7	Marking and instructions		N
B.7.1	The battery compartment of appliances incorporating batteries which are intended to be replaced by the user, shall be marked with the battery voltage and the polarity of the terminals		N
B.7.12	The instructions shall give information regarding charging		N
	The instructions for appliances incorporating batteries which are intended to be replaced by the user shall include the following:		N
	- the type reference of the battery		N

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Clause	Requirement - Test	Result - Remark	Verdict
	- the orientation of the battery with regard to polarity		N
	- the method of replacing batteries		N
	- details regarding safe disposal of used batteries		N
	- warning against using non-rechargeable batteries		N
	- how to deal with leaking batteries		N
	The instructions for appliances incorporating a battery that contains materials which are hazardous to the environment, shall give details on how to remove the battery and shall state that:		N
	- the battery must be removed from the appliance before it is scrapped		N
	- the battery is to be disposed of safely		N
	- the appliance must be disconnected from the supply when removing the battery		N
B.7.15	Markings, other than those associated with the battery, shall be placed on the part of the appliance which is connected to the supply mains		N
B.8	Protection against access to live parts		N
B.8.2	Appliances having batteries replaceable by the user and which cannot be operated without the battery in position are only required to have basic insulation between live parts and parts that are accessible during and after removal of the battery		N
B.11.7	The battery is charged for the period stated in the instructions for use or 24 h, whichever is longer		N
B.19	Abnormal operation		N
B.19.1	Appliances are also subjected to the tests of B.19.101, B.19.102, and B.19.103		N
B.19.10	Not applicable		N
B.19.101	Appliances are supplied at rated voltage and charged for 168 h		N
B.19.102	For appliances having batteries which can be removed without the aid of a tool, the terminals of which can be short-circuited by a thin straight bar, the terminals of the battery are short-circuited, the battery being fully charged		N
B.19.103	Appliances having batteries replaceable by the user are supplied at rated voltage and operated under normal operation but with the battery removed or in any position allowed by the construction		N
B.21	Mechanical strength		N
B.21.101	Appliances having pins for insertion into socket-outlets, shall have adequate mechanical strength		N
	The part of the appliance incorporating the pins is subject to the free fall test, procedure 2 of IEC 68-2-32		N
	The number of falls is:		N
	- 100, if the mass of the part does not exceed 250 g		N
	- 50, if the mass of the part exceeds 250g		N
	After the test, the requirements of 8.1, 15.1.1, 16.3 and 29.1 shall be met		N

Clause	Requirement - Test	Result - Remark	Verdict
B.22	Construction		N
B.22.3	Appliances having pins for insertion into socket-outlets are tested as fully assembled as possible		N
B.25	Supply connection and external flexible cords		N
B.25.13.2	The requirement is not applicable to interconnection cords subjected to safety extra-low voltage		N
B.30	Resistance to heat, fire and tracking		N
B.30.2	For parts of the appliance which are connected to the supply mains during the charging period, 30.2.3 applies		N
	For other parts, 30.2.2 applies		N
C	**ANNEX C, AGEING TEST ON MOTORS**		N
	Test carried out when doubt with regard to the classification of the insulating system of a motor winding		N
E	**ANNEX E, MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		P
	Methods of measuring creepage distances and clearances, specified in 29.1, indicated in 10 different cases		P
F	**ANNEX F, MOTORS NOT ISOLATED FROM THE SUPPLY MAINS AND HAVING BASIC INSULATION NOT DESIGNED FOR THE RATED VOLTAGE OF THE APPLIANCE**		N
	Motors having a working voltage not exceeding 42 V, not being isolated from the supply mains, and having basic insulation not designed for the rated voltage of the appliance are tested according to this annex		N
	All clauses of this standard apply, unless otherwise specified in this annex		N
F.8	Protection against accessibility to live parts		N
F.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
F.16	Leakage current and electric strength		N
F.19	Abnormal operation		N
F.19.101	Appliance operated at rated voltage with each of the following defects:		N
	- short-circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N
	- open circuit of the supply to the motor		N
	- open circuit of any shunt resistor during operation of the motor		N
F.22	Construction		N
F.22.101	Class I appliance 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

Clause	Requirement - Test	Result - Remark	Verdict
G	**ANNEX G, CIRCUIT FOR MEASURING LEAKAGE CURRENTS**		P
	A suitable circuit for measuring leakage currents is shown		P
H	**ANNEX H, SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30**		P
J	**ANNEX J, BURNING TEST**		N
	The burning test is made in accordance with IEC 707, and method FH is used		N
	Category FH3 applies, the maximum burning rate being 40 mm/min		N
K	**ANNEX K, GLOW-WIRE TEST**		P
	The glow-wire test is made in accordance with IEC 695-2-1 (clause numbers between parentheses refer to IEC 695-2-1)		P
(4)	Description of test apparatus: the last paragraph before the note is replaced		P
(5)	Severities: the duration of application of the tip of the glow-wire to the specimen being (30 ± 1) s		P
(10)	Observations and measurements: item c) does not apply		P
L	**ANNEX L, BAD-CONNECTION TEST WITH HEATERS**		N
	The bad-connection test with heaters is made in accordance with IEC 695-2-3 (clause numbers between parentheses refer to IEC 695-2-3)		N
(3)	General description of the test: additions concerning crimped connections		N
(4)	Description of test apparatus: replacements of some of the test specifications and the first paragraph of the note		N
(6)	Severities: the duration of application of the test power being (30 ± 1) min		N
(8)	Test procedure: 8.6 replaced		N
(11)	Information to be given in the relevant specification: item h), the first dashed paragraph, does not apply		N
M	**ANNEX M, NEEDLE-FLAME TEST**		N
	The needle-flame test is made in accordance with IEC 695-2-2 (clause numbers between parentheses refer to IEC 695-2-2)		N
(4)	Description of the apparatus: the sixth paragraph is replaced		N
(5)	Severities: the duration of application of the test flame is (30 ± 1) s		N
(8)	Test procedure: some changes in the test specifications		N
(10)	Evaluation of the test results: addition in the test specification		N
N ⊗	**ANNEX N, PROOF TRACKING TEST**		NE
	The proof tracking test is made in accordance with IEC 112 (clause numbers between parentheses refer to IEC 112)		NE
(3)	Test specimen: the last sentence of the first paragraph does not apply		NE
(5)	Test apparatus: some changes in the subclauses		NE

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Clause	Requirement - Test	Result - Remark	Verdict
(6)	Procedure: adjustments of the test specifications		NE
P ⊗	**ANNEX P, SEVERITY OF DUTY CONDITIONS OF INSULATING MATERIAL WITH RESPECT TO THE RISK OF TRACKING**		NE
	Recognition of different duty conditions with respect to the risk of tracking		NE
ZA	**ANNEX ZA, SPECIAL NATIONAL CONDITIONS**		P
7.12	DENMARK: requirements regarding marking tag of power supply cord and connecting of earthing wire		P
19.5	NORWAY: the test is also applicable to appliances intended to be permanently connected to fixed wiring		N
19.11.2	AUSTRIA: requirements regarding appliances having circuits which under fault conditions may cause earth-leakage currents having a d.c. component exceeding 5 mA and exceeding 20% of the total earth-leakage		N
22.2	FRANCE, NORWAY: The second paragraph of this subclause dealing with single-phase Class I appliances with heating elements is not applicable due to the supply system		N
25.6	BELGIUM, FRANCE, GREECE, UNITED KINGDOM: plugs according to Standard Sheet C2b not allowed		N
	AUSTRIA, GERMANY, FINLAND, ICELAND, IRELAND, ITALY, LUXEMBOURG, NETHERLANDS, NORWAY, PORTUGAL, SPAIN, SWEDEN, SWITZERLAND, UNITED KINGDOM: plugs according to Standard C3b not allowed		N
	DENMARK: Supply cords of single-phase portable appliances having a rated current not exceeding 10 A provided with a plug according to the following:		N
	Class I appliances: Section 107-2-DI Standard Sheet DK2-1a		N
	For appliances covered by a Part 2 of EN 60 335, also plugs in accordance with IEC 83, Standard Sheet C2b, C3b or C4 are allowed		N
	Class II appliances: IEC 83, Standard Sheet C5 or C6		N
	Stationary single-phase appliances, having a rated current not exceeding 10 A, and provided with a plug, the plug is in accordance with the requirements above		N
	Multi-phase appliances and single-phase appliances having a rated current exceeding 10 A, and provided with a plug, the plug is in accordance with the requirements below:		N
	Class I appliances: Section 107-2-D1, Standard Sheet DK6-1a/EN 60 309-2, Standard Sheet 2-II, 2-IV		N
	Class II appliances: Section 107-2-D1, Standard Sheet DK6-1a/2-II, 2-IV		N
	IRELAND: plug is in accordance with Standard Sheets B1 (15A), B2 and C2b		N
	SPAIN: Appliances having a rated current not exceeding 6 A, provided with a plug complying with UNE 20 315:		N
	for Class I appliances: Figure 7C		N
	for Class II appliances: Figure 15A		N
	Class I appliances having a rated current not exceeding 16 A, provided with a plug complying with Standard UNE 20 315 Figure 7B		N

⊗ Not accredited by SINAL

Clause	Requirement - Test	Result - Remark	Verdict
	UNITED KINGDOM: plug according to Standard Sheet B2 or C5 used (refer to Annex ZB)		N
	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 884-1 and one of the following dimension sheets:		N
	SEV 6532-2:1991 plug type 15 3P+N+PE 250/400 V, 10 A		N
	SEV 6532-2:1991 plug type 11 L+N 250 V, 10 A		N
	SEV 6532-2:1991 plug type 12 L+N+PE 250 V, 10 A		N
25.8	IRELAND, UNITED KINGDOM: replacement of figures (rated current/cross-sectional area) in the table		P
ZB	**ANNEX ZB, A-DEVIATIONS**		N
3	SWITZERLAND: information about batteries		N
7.1	ITALY: the voltage is 220 V/380 V		N
	SPAIN: the voltages are 127 V/220 V and 220 V/380 V		N
7.12	IRELAND: information about required label attached to the supply cord, concerning the colour code of the wires		N
22.22	GERMANY: the amount of asbestos in the mass containing asbestos not exceeding 0,1%		N
	FINLAND: certain types of asbestos not used		N
24	SWEDEN: components containing mercury not used		N
25.6	UNITED KINGDOM: regulations concerning plugs to be fitted to domestic appliances		N
ZC	**ANNEX ZC, CAPACITORS**		N
	The following clauses and subclauses of IEC 384-14 apply to capacitors likely to be permanently subjected to the supply mains voltage and used for radio interference suppression or for voltage dividing purposes with the following modifications		N
1.5	Terminology		N
1.5.3	Applicable, capacitors of Class X tested as capacitors of Class X2		N
1.5.4	Applicable		N
1.6	Marking		N
	Items a) and b) applicable		N
3	Quality assessment procedures		N
3.4.3.2	Tests. Tab. 2 is applicable as follows:		N
	- group 0: subclauses 4.1, 4.2.1, and 4.2.5		N
	- group 1A: subclause 4.1.1		N
	- group 2: subclause 4.12		N
	- group 3: subclauses 4.13 and 4.14		N
	- group 6: subclause 4.17		N
	- group 7: subclauses 4.18		N

Clause	Requirement - Test	Result - Remark	Verdict
4.	Test and measurements procedures		N
4.1	Visual examination and check of dimensions		N
	Applicable		N
4.2	Electrical tests		N
4.2.1	Applicable		N
4.2.5	Applicable		N
4.2.5.2	Only Tab. 9 is applicable. The values for test A apply, however for capacitors in heating appliances the values for test B or C apply		N
4.12	Applicable		N
4.13	Applicable		N
4.14	Applicable with its subclauses 4.14.1, 4.14.3 and 4.14.7		N
4.14.7	Addition; only insulation resistance and voltage proof are checked (see Tab. 14) together with a visual examination to ensure that there is no visible damage		N
4.17	Applicable		N
4.18	Applicable		N
ZD	**ANNEX ZD, SAFETY ISOLATING TRANSFORMERS**		N
	Safety isolating transformers, tested with the appliance, comply with this standard and the following additional requirements		N
7	Marking and instructions		N
7.1	Marking of transformers for specific use:		N
	- name		N
	- trademark/identification mark of manufacturer or responsible vendor		N
	- model or type reference		N
17	Overload protection of transformers and associated equipment		N
	The temperature limits specified for the windings do not apply to fail-safe transformers		N
	Such transformers comply with 14.5 of EN 60 742		N
22	Construction		N
22.501	Subclause 8.6 of EN 60 742 applicable		N
29	Creepage distances, clearances and distances through insulation		N
29.1	The distances specified in Table XV of EN 60 742, items 1a, 1c and 2 apply		N
ZE	**ANNEX ZE, SWITCHES**		N
	Switches tested with the appliance comply with this standard and the following clauses of IEC 1058-1, as modified		N
	- the tests of IEC 1058-1 carried out under the conditions occurring in the appliance, unless		N
	- otherwise specified, the tests are carried out on the switch incorporated in the appliance		N

Clause	Requirement - Test	Result - Remark	Verdict
	- before being tested in the appliance, switches are operated 20 times without load		N
8	Marking and documentation		N
	Switches are not required to be marked except, that incorporated switches shall be marked with the manufacturer's name or trademark and the type reference		N
13	Mechanism		N
	Applicable		N
15	Insulation resistance and electric strength		N
15.1	Not applicable		N
15.2	Not applicable		N
15.3	Applicable for full disconnection micro-disconnection		N
17	Endurance		N
	Applicable, at the end of the tests, temperature rise of the terminals not increased by more than 30 K		N
20	Clearances, creepage distances and distances through insulation		N
	Applicable for creepage distances and clearances for live parts of different potential only, as stated in table 18 for operational insulation, and across full disconnection and micro-disconnection		N
ZF	**ANNEX ZF, informative**		P
	IEC and CENELEC code designations for flexible cords		P

10.	**TABLE: Input deviation measurements**				P
Input deviation dP of/at:	P rated (W)	P (W)	dP (W)	Required dP (W)	Remark
230V 50Hz	250	203	- 47	+ 50	

11.7	**TABLE: Heating temperature specifications**		P
Test step:	Temperature	Duration	--
Working cycle: 56s, pause-time 1s, working-time 56s, rest-time 36 min 43s	40	17320 s	

TEST REPORT
EN 60 335-1 1994

Safety of household and similar electrical appliances
Part 1: General requirements

Report

Reference No. ..... : S9963701
Compiled by (+ signature) ..... : E. Tosin - *Supervisor*
Approved by (+ signature) ..... : R. Beghetto - *Laboratory Manager*
Date of issue ..... : 04/01/2000
Contents ..... : 39 pages

Testing laboratory

Name ..... : CMC Centro Misure Compatibilità S.r.l.
Address ..... : Via S. Maria, 84 - 36030 - Sarcedo (VI) - Italy - tel. fax 0445 / 344184
Testing location ..... : as above

Client

Name ..... : BFT
Address ..... : Via Lago di Vico, 44
..... : 36015 Schio (VI)

Test specification

Standard ..... : EN 60335-1 '94 , EN 60335-1/A11 '95, EN 60335-1/A1 '96, EN 60335-1/A12 '96, EN 60335-1/A13 '98 and EN 60335-1/A14 '98
Procedure deviation ..... : N.A.
..... :

Test item

Description ..... : Piston automation for swing gates
Trademark ..... : BFT
Model and/or type reference ..... : P7
Manufacturer ..... : Same as client
Serial Number ..... : ---
Rating(s) ..... : 230 V 50Hz 250W 1.1A IP55 Capacitor 8µF Push force 8000N Pull force 6500N
..... : Ta=40°C Max. 260 manoeuvres for day Max. 10 consecutive manoeuvres Working-time 56s, pause-time 1s, working-time 56s, rest-time 36 min 43s

Index

1. Particulars: test item vs. test requirements

Nature of supply ..... : a.c.
Class of protection against electrical shock ..... : Class I
Degree of protection against moisture ..... : IP55
Type of cord attachment ..... : Type Y
Type of mounting ..... : Yes
- building-in ..... : No
- portable ..... : No
- to be fixed to a support ..... : Yes
- hand-held ..... : No
Switch ..... : No
Thermostat ..... : No
Temperature limiter ..... : No
Thermal self-resetting cut-out ..... : Yes
Electronic circuit ..... : No
Programme controller ..... : No
Timer ..... : No
Stationary appliance ..... : Yes
Appliance kept in the hand ..... : No
Appliance continuously loaded by hand ..... : No
Power supply cord provided ..... : Yes
Thermostat without an OFF position ..... : No
Energy regulator without an OFF position ..... : No
Motor with capacitor in auxiliary winding ..... : Yes
Automatic control in flexible cable or cord ..... : No
Series motors incorporated ..... : No
Connection to water supply mains ..... : No
Length of cord < 2 m ..... : Yes
Appliance intended for outdoor use ..... : Yes
Drain hole provided ..... : No
Contact opening ≥ 3 mm in each pole ..... : A Statement in the instructions
Mercury switch provided ..... : No

2. Test case verdicts

Test case does not apply to the test object ..... : N(.A.)

Test item does meet the requirement ..... : P(ass)

Test item does not meet the requirement ..... : F(ail)

Test item is not performed: NE (Not Executed)

3. Testing and sampling

Date of receipt of test item ..... : 21.12.1999

Date of beginning of tests..... : 23.12.1999

Date of end of tests..... : 03.01.2000

..... :

Appliance used for testing was picked up by the manufacturer, at the end of the production process with random criterion

4. General remarks

Results are written following the exactly sequence of the performed measurements.

"(see remark #)" refers to a remark appended to the report.

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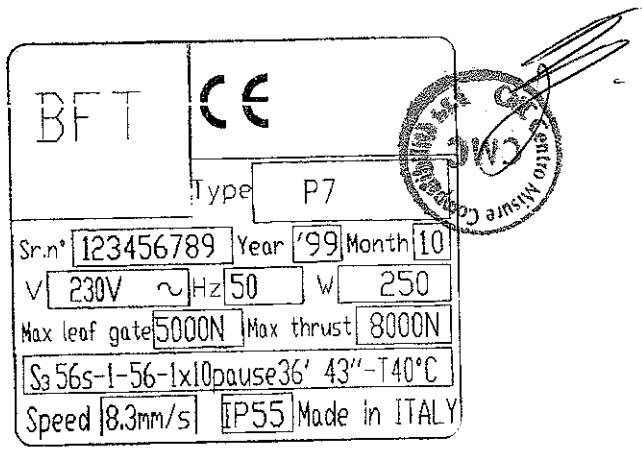
Measurement uncertainty was in accordance with CMC INC_M rev. 3.0 document issued on 15.10.99.

Test reported in this report marked by wording: "Not accredited by SINAL" are not part of the SINAL accreditation of this laboratory

Control unit BFT model Alcor 6

5. Copy of marking plate



6. Equipment list

Equipment	*Model*	*Description*	*Serial number*	*Precision*	*Due date*
CMC B001	SM001	Test pin	---	--	05/2002
CMC B002	SM002	Test probe	---	--	05/2002
CMC B003	SMIP2X	Test finger IPX2	---	--	05/2002
CMC B004	SMIP3X	Straight rigid steel wire of 2.5mm diameter-length 100mm	---	--	05/2002
CMC B005	SMIP4X	Straight rigid steel wire of 1.0mm diameter-length 100mm	---	--	05/2002
CMC B006	HD 8802-TP647/74	Digital thermometer	291096D294	± 2 °C	06/2000
CMC B008	8170 CF	HV tester	1162	Cl. 1	06/2000
CMC B009	8270 CL	Insulation Tester	372	Cl. 1	06/2000
CMC B010	9170 DG	Security circuit res tester	334	Cl. 1	06/2000
CMC B011	1800300	Calliper	---	± 0.05 mm	06/2000
CMC B012	SMIPX5	Hose nozzle IPX5	---	--	06/2001
CMC B013	SMIPX6	Hose nozzle IPX6	---	--	06/2001
CMC B014	SMAIPX56	Test device for hose nozzle	---	--	06/2001
CMC B015	FG-5000	Digital force gauge	L398212	± 0.2 %	06/2000
CMC B016	F22.50	Spring-operated impact-test apparatus	9709349	± 0.02 J	09/2000
CMC B018	Art. N. 02.04	Ball-pressure apparatus	26	--	09/2001
CMC B019	580/25F	Dinamometric screwdriver	7GT035996	± 4 %	06/2000
CMC B020	SM004	Leakage current tester	---	Cl. 0.5	06/2000
CMC B022	34970A	Switch unit and thermocouple	US37005788	± 2 °C	06/2000
CMC B026	UY 245 IU	Climatic chamber	1059.78	± 2 °C	06/2000
CMC B027	Art. N. 01.02-A	Rigid test finger	064/98	--	09/2001
CMC B028	Art. N. 01.10	Test finger nail	065/98	--	09/2001
CMC B029	SM005	Glow Wire Test	---	± 15 °C	06/2000
CMC B031	BF01	Steel Ball	---	--	09/2004
CMC A015	CIP01	IP Chamber IPX1,2,3,4	---	± 5 %	05/2000
CMC A016	CU01	Humidity test chamber	---	± 2 %	05/2000
CMC S005	2503	Power supply analyser	2503592013	± 0.15 %	01/2000
CMC S026	C6530	AC Source	653000095	± 1 %	01/2000
CMC S042	Fluke 73	Multimeter	67771510	± 2.5 %	06/2000

CMC Centro Misure Compatibilità S.r.l. - Via S. Maria, 84 -36030 Sarcedo (VI) - ITALY - tel./fax +39 0445 344184

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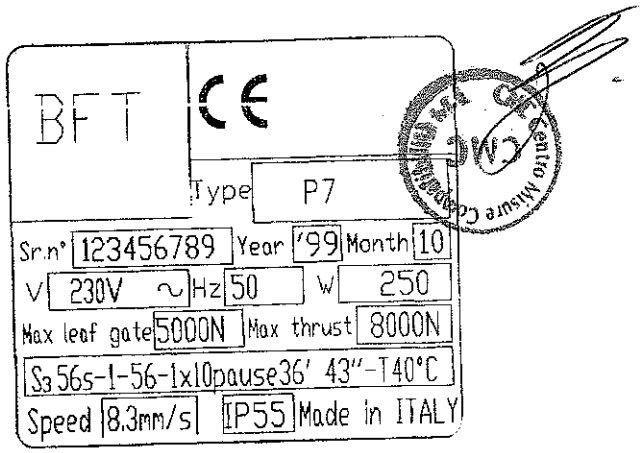
Control unit BFT model Alcor 6

5. Copy of marking plate



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CMC B002	SM002	Test probe	---	--	05/2002
CMC B003	SMIP2X	Test finger IPX2	---	--	05/2002
CMC B004	SMIP3X	Straight rigid steel wire of 2.5mm diameter-length 100mm	---	--	05/2002
CMC B005	SMIP4X	Straight rigid steel wire of 1.0mm diameter-length 100mm	---	--	05/2002
CMC B006	HD 8802-TP647/74	Digital thermometer	291096D294	± 2 °C	06/2000
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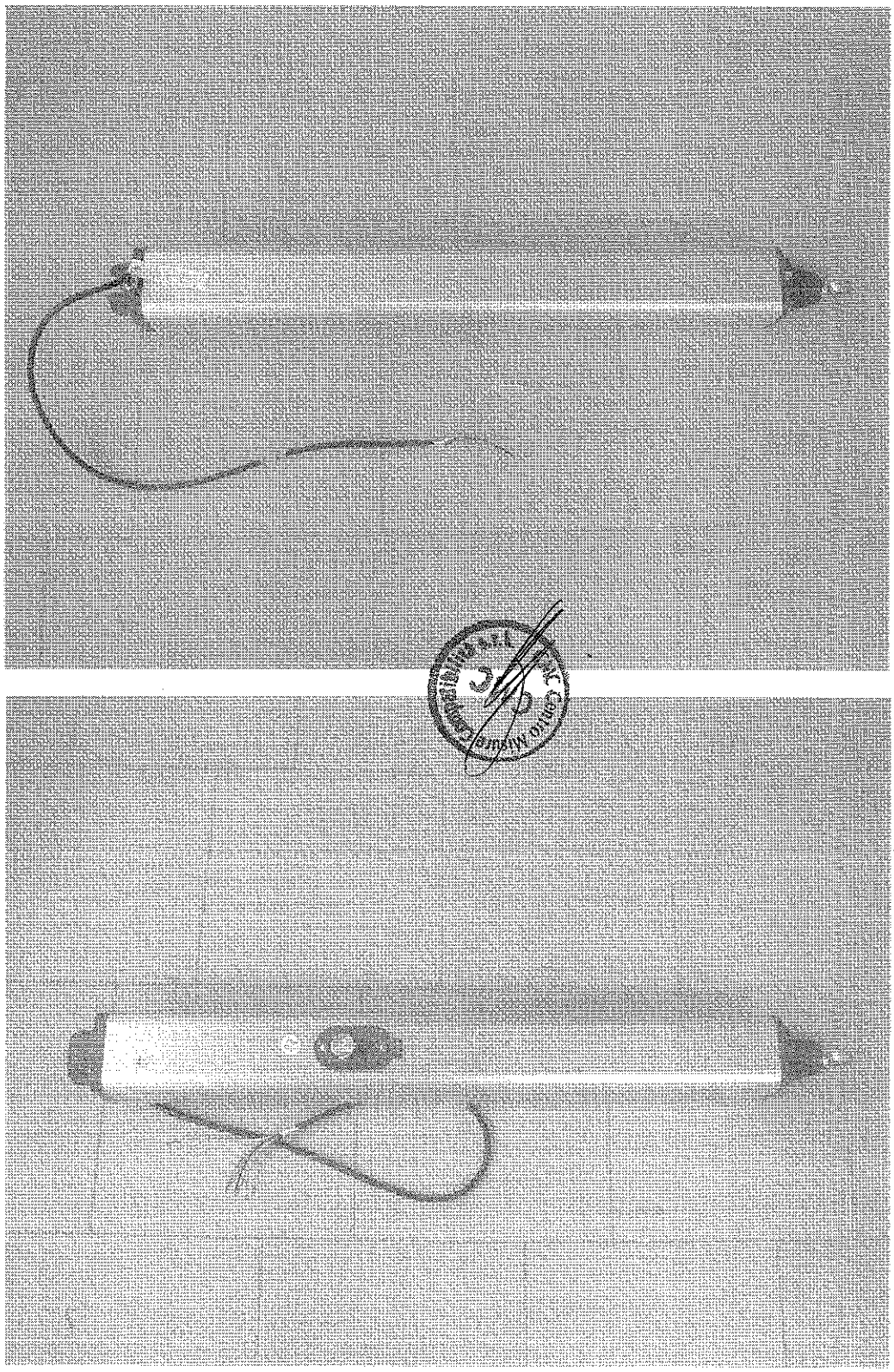
CMC B012	SMIPX5	Hose nozzle IPX5	---	--	06/2001
CMC B013	SMIPX6	Hose nozzle IPX6	---	--	06/2001
CMC B014	SMAIPX56	Test device for hose nozzle	---	--	06/2001
CMC B015	FG-5000	Digital force gauge	L398212	± 0.2 %	06/2000
CMC B016	F22.50	Spring-operated impact-test apparatus	9709349	± 0.02 J	09/2000
CMC B018	Art. N. 02.04	Ball-pressure apparatus	26	--	09/2001
CMC B019	580/25F	Dinamometric screwdriver	7GT035996	± 4 %	06/2000
CMC B020	SM004	Leakage current tester	---	Cl. 0.5	06/2000
CMC B022	34970A	Switch unit and thermocouple	US37005788	± 2 °C	06/2000
CMC B026	UY 245 IU	Climatic chamber	1059.78	± 2 °C	06/2000
CMC B027	Art. N. 01.02-A	Rigid test finger	064/98	--	09/2001
CMC B028	Art. N. 01.10	Test finger nail	065/98	--	09/2001
CMC B029	SM005	Glow Wire Test	---	± 15 °C	06/2000
CMC B031	BF01	Steel Ball	---	--	09/2004
CMC A015	CIP01	IP Chamber IPX1,2,3,4	---	± 5 %	05/2000
CMC A016	CU01	Humidity test chamber	---	± 2 %	05/2000
CMC S005	2503	Power supply analyser	2503592013	± 0.15 %	01/2000
CMC S026	C6530	AC Source	653000095	± 1 %	01/2000
CMC S042	Fluke 73	Multimeter	67771510	± 2.5 %	06/2000

7. Photographs of the appliance



Clause	Requirement - Test	Result - Remark	Verdict
8. Report Form EN 60335-1 1994			
4	**GENERAL CONDITIONS FOR THE TESTS**		P
	Tests performed according to Cl. 4, e.g. nature of supply, sequence of testing, etc.		P
4.8.1	Test frequency (Hz)	50Hz	P
6	**CLASSIFICATION**		P
6.1	Protection against electric shock: Class I, II, III	Class I	P
6.2	Protection against harmful ingress of water	IPX5	P
7	**MARKING**		P
7.1	Rated voltage or voltage range (V)	230V	P
	Single-phase appliances: 230 V covered		P
	Multi-phase appliances: 400 V covered		N
	Nature of supply	~	P
	Rated frequency or frequency range (Hz)	50Hz	P
	Rated input or rated current	250W	P
	Manufacturer's or responsible vendor's name, trademark or identification mark	BFT	P
	Model or type reference	P7	P
	Symbol for Class II		N
	IP number	IP55	P
7.2	Warning for stationary appliances		N
	Warning placed in vicinity of terminal cover		N
7.3	Range of rated values correctly marked		N
7.4	Voltage setting clearly discernible		N
7.5	Marking of rated input for each rated voltage		N
	Marking for upper and lower limits of rated input		N
7.6	Correct symbols used		P
7.7	Correct connection diagram, fixed to the appliance	A statement in the instruction	P
7.8	Not for type Z attachment:		N
	- marking of terminals for the neutral conductor (N)		N
	- marking of earthing terminals		N
	- marking not placed on removable parts		N
	- marking of terminal for single-pole protective device		N
7.9	Marking or placing of switches which may cause a hazard		N

Clause	Requirement - Test	Result - Remark	Verdict
7.10	Indications of switches and regulating devices by use of figures, letters or other		P
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		N
7.11	Indication for direction of adjustment of controls		P
7.12	Instructions for safe use provided		P
	Appliances incorporating batteries which contain materials hazardous to the environment: statement in the instructions how to remove, scrap and dispose of the battery safely		N
	Statement in the instructions that the appliance must be disconnected from the supply		N
7.12.1	Sufficient details for installation or maintenance supplied		P
7.12.2	Means for disconnection with contact separation at least 3 mm		P
	Stationary appliance with supply cord and plug: statement in the instructions that the appliance is so positioned that the plug is accessible		N
7.12.3	Insulation in contact with parts exceeding 50 K; instruction		N
7.12.4	Information with regard to building-in:		N
	- dimensions of space		N
	- dimensions and position of support		N
	- ventilation openings		N
	- connection/interconnection plug accessible		N
7.12.5	Replacement cord, type X attachment		N
	Replacement cord, type Y attachment		P
	Replacement cord, type Z attachment		N
7.13	Instructions and other texts in official language	Only Italian version checked	P
7.14	Marking easily legible and durable		P
7.15	Marking on a main part		P
	Marking clearly discernible from outside		P
	Stationary appliance: name or trademark and model or type reference visible after installation		P
	Indication for switches and controls in vicinity of components; not on removable parts if misleading		P
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N
8	**PROTECTION AGAINST ACCESSIBILITY TO LIVE PARTS**		P
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	All positions; detachable parts removed		P
	Removal of lamps: protection against contact with live parts		N
	Use of test finger: no contact with live parts		P

Clause	Requirement - Test	Result - Remark	Verdict
8.1.2	Use of test pin: no contact with live parts		N
8.1.3	Use of test probe: no contact with live parts of visible glowing heating elements		N
8.1.4	Accessible part not considered live if:		N
	- extra-low a.c. voltage: peak values not exceeding 42,4 V		N
	- extra-low d.c. voltage: not exceeding 42,4 V		N
	- or separated from live parts by protective impedance, d.c. current not exceeding 2 mA		N
	- or separated from live parts by protective impedance, a.c. peak value not exceeding 0,7 mA		N
	- for peak value 42,4 V up to and including 450 V capacitance not exceeding 0,1 µF		N
	- for peak value 450 V up to and including 15 kV, the discharge shall not exceed 45 µC		N
8.1.5	Live parts protected at least by basic insulation before installation or assembly (checked by inspection and the test of 8.1.1):		P
	- built-in appliances		N
	- fixed appliances		P
	- separate units		N
8.2	Class II appliances and constructions adequately protected against accidental contact with basic insulation and metal parts separated from live parts with only basic insulation		N
	Only possible to touch parts separated from live parts by double or reinforced insulation		N
	Appliances with batteries replaceable by the user, basic insulation between live parts and the inner surface of the battery compartment adequate		N
	If appliance can be operated without batteries: double or reinforced insulation used		N
10	**POWER INPUT AND CURRENT**		P
10.1	Power input at rated voltage and normal operating temperature not deviating from rated input by more than shown in table	(see appended table)	P
10.2	Current at normal operating temperature not deviating from rated current by more than shown in table		N
11	**HEATING**		P
11.1	No excessive temperatures in normal use		P
11.2	Placing and mounting of appliance as described:		P
	- built-in		N
	- against a wall		N
	- suspended in still air		N
	- on the floor or table		N
	- fixed to a ceiling		N
	- on its stand		P

Clause	Requirement - Test	Result - Remark	Verdict
11.3	Temperature rises determined by thermocouples or resistance method		P
11.4	Heating appliances operated under normal operation at 1,15 times rated power input		N
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage		P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage		N
11.7	Appliances are operated for a duration corresponding to the most unfavourable conditions of normal use		P
11.8	Protective devices do not operate		P
	Sealing compound not flowing out		P
	Temperatures not exceeding values in table 3	(see appended table and graph)	P
13	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		P
13.1	Leakage current not excessive and electric strength adequate		P
13.2	Leakage current measured by means of circuit described in Annex G		P
	Leakage current measurements	(see appended table)	P
13.3	Electric strength test of insulation	(see appended table)	P
	No breakdown during the test		P
15	**MOISTURE RESISTANCE**		P
15.1	Enclosure provides the degree of moisture protection according to classification of appliance (tests 15.1.1 and 15.1.2)	IPX5	P
	Withstand electric strength test specified in 16.3		P
	No trace of water on insulation which can result in a reduction of distances and clearances below values specified in 29.1		P
15.1.1	Appliance subjected to test as specified		P
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N
	Built-in appliance installed according to the manufacturer's instruction		N
	Other appliances tested as specified		P
15.2	Spillage of liquid does not affect the electrical insulation		N
	Overfilling test with additional amount of liquid		N
	Withstand electric strength test in 16.3		N
	No trace of water on insulation which can result in reduction of distances and clearances below values specified in 29.1		N
15.3	Humidity treatment for 48 h		P
	Withstanding the test of Cl. 16		P
16	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		P
16.1	No excessive leakage current and adequate insulation and electric strength (tests 16.2 and 16.3)		P
16.2	Leakage current measurements	(see appended table)	P

Clause	Requirement - Test	Result - Remark	Verdict
16.3	Electric strength tests (values in table 5)	(see appended table)	P
17	**OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS**		N
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use		N
	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
	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
	Temperature of the winding not exceeding the value specified in table 6		N
19	**ABNORMAL OPERATION**		P
19.1	The risk of fire or mechanical damage under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe		N
19.2	Appliances with heating elements: test conditions as in Cl. 11, with restricted heat dissipation; test voltage (V): power input of 0,85 times rated power input		N
19.3	Test of 19.2 repeated; test voltage (V): power input of 1,24 times rated power input		N
19.4	Test conditions as in Cl. 11, the power input being 1,15 times rated power input, any control limiting the temperature during tests of Cl. 11 short-circuited		N
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
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N
19.6	Appliances with PTC heating elements tested as specified. Supplied at rated voltage, establishing steady conditions, then the voltage increased in steps by 5% until 1,5 times rated voltage is reached or until the heating element ruptures		N
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque or locking moving parts		P
	Locked rotor, motor capacitors open circuited or short-circuited, if required		P
	Appliances with timer or controller supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed	TL = 132 s	P
	Test period at rated voltage (s or min) or until steady state conditions established		N
	Winding temperatures not exceeding limiting temperature; type of appliance; insulation class; measured temperature (°C)	(see appended table)	P
19.8	Three-phase motors operated at rated voltage with one phase disconnected		N
19.9	Running overload test of appliance incorporating motors at rated voltage; motor windings insulation class; measured temperature (°C); allowed temperature (°C)	(see appended table)	P
19.10	Series motor operated at 1,3 times rated voltage for 1 min		N

Clause	Requirement - Test	Result - Remark	Verdict
	Parts not ejected from the appliance during test		N
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
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:		N
	- 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
	- 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
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:		N
	a) short-circuit of creepage distances and clearances between live parts of different potential, if these distances are less than the values specified in 29.1, unless the relevant part is adequately encapsulated		N
	b) open circuit at the terminals of any component		N
	c) short-circuit of capacitors, unless they comply with IEC 384-14 or 14.2 of IEC 65		N
	d) short-circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition is not applied between the circuits of an optocoupler		N
	e) failure of triacs in the diode mode		N
	f) failure of an integrated circuit. In this case 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
	During and after each test the following is checked:		N
	- the temperature rise of the windings do not exceed the values specified in table 6		N
	- the appliance complies with the conditions specified in 19.13		N
	- live parts not accessible to the test finger or test pin as specified in Cl. 8		N
	- any current flowing through protective impedance not exceeding the limits specified in 8.14		N
	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:		N
	- the material of the printed circuit board withstands the burning test of 20.1 of IEC 65		N
	- any loosened conductor does not reduce the creepage distances or clearances between live part and accessible metal parts		N
	- the appliance withstands the tests of 19.11.2 with open circuited conductor bridged		N
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 127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A)		N

Clause	Requirement - Test	Result - Remark	Verdict
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 7	(see appended table)	P
	Enclosures not deformed to such an extent that compliance with Cl. 8 is impaired		P
	Appliance still operable and complying with 20.2		P
	Appliance, other than Class III, withstands the electric strength test of 16.3, however, the test voltage being:		P
	- basic insulation: 1000 V		P
	- supplementary insulation: 2750 V		N
	- reinforced insulation: 3750 V		N
20	**STABILITY AND MECHANICAL HAZARDS**		P
20.1	Adequate stability		N
	Tilting test through an angle of 10° (appliance placed on an inclined plane/horizontal plane); appliance does not overturn		N
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 7		N
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury		P
	Protective enclosures, guards and similar parts are non-detachable		P
	Adequate mechanical strength and fixing of protective enclosures		P
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard, if unexpectedly reclosed		P
	Not possible to touch dangerous moving parts with test finger		P
21	**MECHANICAL STRENGTH**		P
	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
	If necessary, repetition of groups of three blows on a new sample		N
22	**CONSTRUCTION**		P
22.1	Appliance marked with the first numeral of the IP system: relevant requirements of IEC 529 are fulfilled	IP5X	NE
22.2	Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:		P
	- a supply cord fitted with a plug		N
	- a switch complying with 24.3		N
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided		P

Clause	Requirement - Test	Result - Remark	Verdict
	- an appliance coupler		N
	Single-phase Class I appliance with heating elements, intended to be permanently connected to fixed wiring, incorporating single-pole switches or single-pole protective devices for the disconnection of the heating element(s): the switches/devices being connected in the phase conductor		N
22.3	Appliance provided with pins: no undue strain on socket-outlets		N
	Applied torque not exceeding 0,25 Nm		N
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		P
22.5	No risk of electric shock when touching the pins of the plug		N
22.6	Electrical insulation not affected by condensing water or leaking liquid		P
	Electrical insulation of Class II appliances not affected in case of a hose rupture or seal leak		N
22.7	Adequate safeguards against the risk of excessive pressure in appliances provided with steam-producing devices		N
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 which are likely to be cleaned in normal use		P
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances		N
	Adequate insulating properties of oil or grease to which insulation is exposed		P
22.10	Location or protection of reset buttons of non-self-resetting controls is so that accidental resetting is unlikely		N
22.11	Reliable fixing of non-detachable parts which provide the necessary degree of protection against electric shock, moisture or contact with moving parts		P
	Obvious locked position of snap-in devices used for fixing such parts		N
	No deterioration of the fixing properties of snap-in devices used in parts which are likely to be removed during installation or servicing		N
	Tests	Push 50N, pull 50N and torque 4 Nm	P
22.12	Handles, knobs etc. fixed in a reliable manner		P
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		N
	Axial force 15 N applied to parts, the shape of which being so that an axial pull is unlikely to be applied		N
	Axial force 30 N applied to parts, the shape of which being so that an axial pull is likely to be applied		P
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
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

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
	Cord reel tested with 6000 operations, as specified		N
	Electric strength test of 16.3, voltage of 1000 V applied		N
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N
22.18	Current-carrying parts and other metal parts resistant to corrosion under normal conditions of use		P
22.19	Driving belts not used as electrical insulation		N
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible		N
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless impregnated		P
22.22	Appliance shall not contain asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements adequately supported		N
	In case of rupture, the heating conductor is unlikely to come in contact with earthed metal parts or accessible metal parts		N
22.25	Sagging heating conductors cannot come into contact with accessible metal parts		N
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
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N
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
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of protection against electric shock is maintained after installation		N
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		N
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		N
22.31	Creepage distances and clearances over supplementary and reinforced insulation not reduced below values specified in 29.1 as a result of wear		N
	Creepage distances and clearances over supplementary or reinforced insulation not reduced to less than 50% of values specified in 29.1 if wires, screws etc. becomes loose		N
22.32	Supplementary and reinforced insulation designed or protected against deposition of dirt or dust		N
	Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation		P

CMC Centro Misure Compatibilità S.r.l. - Via S. Maria, 84 -36030 Sarcedo (VI) - ITALY - tel./fax +39 0445 344184

TEST REPORT

EN 60 335-1 1994

Safety of household and similar electrical appliances
Part 1: General requirements

Report

Reference No. ..... : S9963701
Compiled by (+ signature) ..... : E. Tosin - *Supervisor*
Approved by (+ signature) ..... : R. Beghetto - *Laboratory Manager*
Date of issue ..... : 04 / 01 / 2000
Contents ..... : 39 pages

Testing laboratory

Name ..... : CMC Centro Misure Compatibilità S.r.l.
Address ..... : Via S. Maria, 84 - 36030 - Sarcedo (VI) - Italy - tel. fax 0445 / 344184
Testing location ..... : as above

Client

Name ..... : BFT
Address ..... : Via Lago di Vico, 44
..... : 36015 Schio (VI)

Test specification

Standard ..... : EN 60335-1 '94 , EN 60335-1/A11 '95, EN 60335-1/A1 '96, EN 60335-1/A12 '96, EN 60335-1/A13 '98 and EN 60335-1/A14 '98
Procedure deviation ..... : N.A.
..... :

Test item

Description ..... : Piston automation for swing gates
Trademark ..... : BFT
Model and/or type reference ..... : P7
Manufacturer ..... : Same as client
Serial Number ..... : ---
Rating(s) ..... : 230 V 50Hz 250W 1.1A IP55 Capacitor 8µF Push force 8000N Pull force 6500N
..... : Ta=40°C Max. 260 manoeuvres for day Max. 10 consecutive manoeuvres Working-time 56s, pause-time 1s, working-time 56s, rest-time 36 min 43s

Index

1. Particulars: test item vs. test requirements

Nature of supply ..... : a.c.
Class of protection against electrical shock ..... : Class I
Degree of protection against moisture ..... : IP55
Type of cord attachment ..... : Type Y
Type of mounting ..... : Yes
- building-in ..... : No
- portable ..... : No
- to be fixed to a support ..... : Yes
- hand-held ..... : No
Switch ..... : No
Thermostat ..... : No
Temperature limiter ..... : No
Thermal self-resetting cut-out ..... : Yes
Electronic circuit ..... : No
Programme controller ..... : No
Timer ..... : No
Stationary appliance ..... : Yes
Appliance kept in the hand ..... : No
Appliance continuously loaded by hand ..... : No
Power supply cord provided ..... : Yes
Thermostat without an OFF position ..... : No
Energy regulator without an OFF position ..... : No
Motor with capacitor in auxiliary winding ..... : Yes
Automatic control in flexible cable or cord ..... : No
Series motors incorporated ..... : No
Connection to water supply mains ..... : No
Length of cord < 2 m ..... : Yes
Appliance intended for outdoor use ..... : Yes
Drain hole provided ..... : No
Contact opening ≥ 3 mm in each pole ..... : A Statement in the instructions
Mercury switch provided ..... : No

2. Test case verdicts

Test case does not apply to the test object ..... : N(.A.)

Test item does meet the requirement ..... : P(ass)

Test item does not meet the requirement ..... : F(ail)

Test item is not performed: NE (Not Executed)

3. Testing and sampling

Date of receipt of test item ..... : 21.12.1999

Date of beginning of tests..... : 23.12.1999

Date of end of tests..... : 03.01.2000

..... :

Appliance used for testing was picked up by the manufacturer, at the end of the production process with random criterion

4. General remarks

Results are written following the exactly sequence of the performed measurements.

"(see remark #)" refers to a remark appended to the report.

"(see appended table)" refers to a table appended to the report.

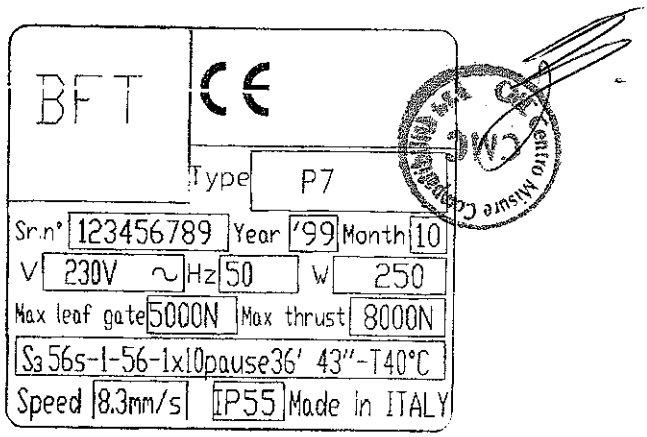
Throughout this report a point is used as decimal separator.

Measurement uncertainty was in accordance with CMC INC_M rev. 3.0 document issued on 15.10.99.

Test reported in this report marked by wording: "Not accredited by SINAL" are not part of the SINAL accreditation of this laboratory

Control unit BFT model Alcor 6

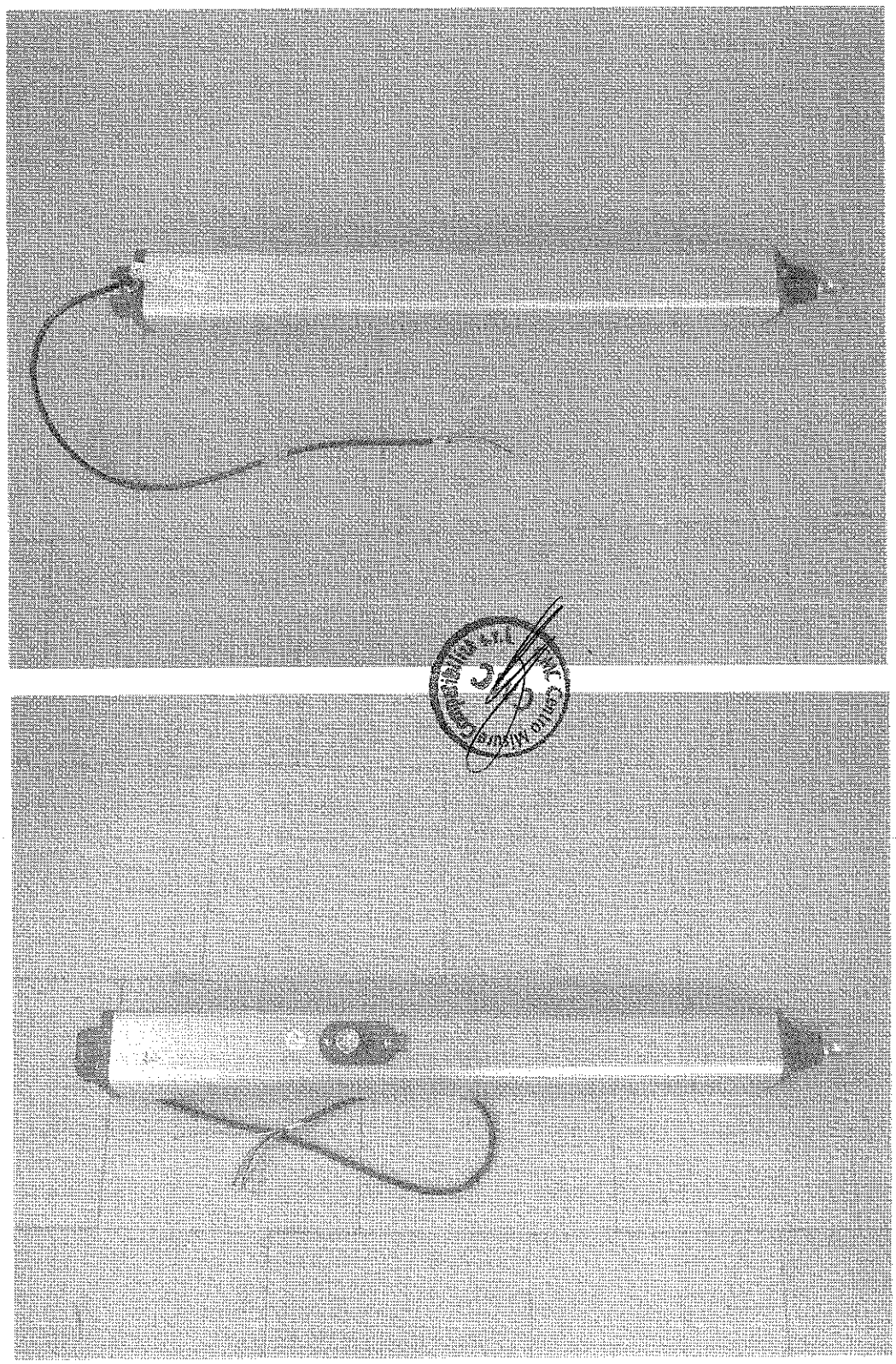
5. Copy of marking plate



6. Equipment list

Equipment	*Model*	*Description*	*Serial number*	*Precision*	*Due date*
CMC B001	SM001	Test pin	---	--	05/2002
CMC B002	SM002	Test probe	---	--	05/2002
CMC B003	SMIP2X	Test finger IPX2	---	--	05/2002
CMC B004	SMIP3X	Straight rigid steel wire of 2.5mm diameter-length 100mm	---	--	05/2002
CMC B005	SMIP4X	Straight rigid steel wire of 1.0mm diameter-length 100mm	---	--	05/2002
CMC B006	HD 8802-TP647/74	Digital thermometer	291096D294	± 2 °C	06/2000
CMC B008	8170 CF	HV tester	1162	Cl. 1	06/2000
CMC B009	8270 CL	Insulation Tester	372	Cl. 1	06/2000
CMC B010	9170 DG	Security circuit res tester	334	Cl. 1	06/2000
CMC B011	1800300	Calliper	---	± 0.05 mm	06/2000
CMC B012	SMIPX5	Hose nozzle IPX5	---	--	06/2001
CMC B013	SMIPX6	Hose nozzle IPX6	---	--	06/2001
CMC B014	SMAIPX56	Test device for hose nozzle	---	--	06/2001
CMC B015	FG-5000	Digital force gauge	L398212	± 0.2 %	06/2000
CMC B016	F22.50	Spring-operated impact-test apparatus	9709349	± 0.02 J	09/2000
CMC B018	Art. N. 02.04	Ball-pressure apparatus	26	--	09/2001
CMC B019	580/25F	Dinamometric screwdriver	7GT035996	± 4 %	06/2000
CMC B020	SM004	Leakage current tester	---	Cl. 0.5	06/2000
CMC B022	34970A	Switch unit and thermocouple	US37005788	± 2 °C	06/2000
CMC B026	UY 245 IU	Climatic chamber	1059.78	± 2 °C	06/2000
CMC B027	Art. N. 01.02-A	Rigid test finger	064/98	--	09/2001
CMC B028	Art. N. 01.10	Test finger nail	065/98	--	09/2001
CMC B029	SM005	Glow Wire Test	---	± 15 °C	06/2000
CMC B031	BF01	Steel Ball	---	--	09/2004
CMC A015	CIP01	IP Chamber IPX1,2,3,4	---	± 5 %	05/2000
CMC A016	CU01	Humidity test chamber	---	± 2 %	05/2000
CMC S005	2503	Power supply analyser	2503592013	± 0.15 %	01/2000
CMC S026	C6530	AC Source	653000095	± 1 %	01/2000
CMC S042	Fluke 73	Multimeter	67771510	± 2.5 %	06/2000

7. Photographs of the appliance



Clause	Requirement - Test	Result - Remark	Verdict
8. Report Form EN 60335-1 1994			
4	**GENERAL CONDITIONS FOR THE TESTS**		P
	Tests performed according to Cl. 4, e.g. nature of supply, sequence of testing, etc.		P
4.8.1	Test frequency (Hz)	50Hz	P
6	**CLASSIFICATION**		P
6.1	Protection against electric shock: Class I, II, III	Class I	P
6.2	Protection against harmful ingress of water	IPX5	P
7	**MARKING**		P
7.1	Rated voltage or voltage range (V)	230V	P
	Single-phase appliances: 230 V covered		P
	Multi-phase appliances: 400 V covered		N
	Nature of supply	~	P
	Rated frequency or frequency range (Hz)	50Hz	P
	Rated input or rated current	250W	P
	Manufacturer's or responsible vendor's name, trademark or identification mark	BFT	P
	Model or type reference	P7	P
	Symbol for Class II		N
	IP number	IP55	P
7.2	Warning for stationary appliances		N
	Warning placed in vicinity of terminal cover		N
7.3	Range of rated values correctly marked		N
7.4	Voltage setting clearly discernible		N
7.5	Marking of rated input for each rated voltage		N
	Marking for upper and lower limits of rated input		N
7.6	Correct symbols used		P
7.7	Correct connection diagram, fixed to the appliance	A statement in the instruction	P
7.8	Not for type Z attachment:		N
	- marking of terminals for the neutral conductor (N)		N
	- marking of earthing terminals		N
	- marking not placed on removable parts		N
	- marking of terminal for single-pole protective device		N
7.9	Marking or placing of switches which may cause a hazard		N

Clause	Requirement - Test	Result - Remark	Verdict
7.10	Indications of switches and regulating devices by use of figures, letters or other		P
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		N
7.11	Indication for direction of adjustment of controls		P
7.12	Instructions for safe use provided		P
	Appliances incorporating batteries which contain materials hazardous to the environment: statement in the instructions how to remove, scrap and dispose of the battery safely		N
	Statement in the instructions that the appliance must be disconnected from the supply		N
7.12.1	Sufficient details for installation or maintenance supplied		P
7.12.2	Means for disconnection with contact separation at least 3 mm		P
	Stationary appliance with supply cord and plug: statement in the instructions that the appliance is so positioned that the plug is accessible		N
7.12.3	Insulation in contact with parts exceeding 50 K; instruction		N
7.12.4	Information with regard to building-in:		N
	- dimensions of space		N
	- dimensions and position of support		N
	- ventilation openings		N
	- connection/interconnection plug accessible		N
7.12.5	Replacement cord, type X attachment		N
	Replacement cord, type Y attachment		P
	Replacement cord, type Z attachment		N
7.13	Instructions and other texts in official language	Only Italian version checked	P
7.14	Marking easily legible and durable		P
7.15	Marking on a main part		P
	Marking clearly discernible from outside		P
	Stationary appliance: name or trademark and model or type reference visible after installation		P
	Indication for switches and controls in vicinity of components; not on removable parts if misleading		P
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N
8	**PROTECTION AGAINST ACCESSIBILITY TO LIVE PARTS**		P
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	All positions; detachable parts removed		P
	Removal of lamps: protection against contact with live parts		N
	Use of test finger: no contact with live parts		P

Clause	Requirement - Test	Result - Remark	Verdict
8.1.2	Use of test pin: no contact with live parts		N
8.1.3	Use of test probe: no contact with live parts of visible glowing heating elements		N
8.1.4	Accessible part not considered live if:		N
	- extra-low a.c. voltage: peak values not exceeding 42,4 V		N
	- extra-low d.c. voltage: not exceeding 42,4 V		N
	- or separated from live parts by protective impedance, d.c. current not exceeding 2 mA		N
	- or separated from live parts by protective impedance, a.c. peak value not exceeding 0,7 mA		N
	- for peak value 42,4 V up to and including 450 V capacitance not exceeding 0,1 µF		N
	- for peak value 450 V up to and including 15 kV, the discharge shall not exceed 45 µC		N
8.1.5	Live parts protected at least by basic insulation before installation or assembly (checked by inspection and the test of 8.1.1):		P
	- built-in appliances		N
	- fixed appliances		P
	- separate units		N
8.2	Class II appliances and constructions adequately protected against accidental contact with basic insulation and metal parts separated from live parts with only basic insulation		N
	Only possible to touch parts separated from live parts by double or reinforced insulation		N
	Appliances with batteries replaceable by the user, basic insulation between live parts and the inner surface of the battery compartment adequate		N
	If appliance can be operated without batteries: double or reinforced insulation used		N
10	**POWER INPUT AND CURRENT**		P
10.1	Power input at rated voltage and normal operating temperature not deviating from rated input by more than shown in table	(see appended table)	P
10.2	Current at normal operating temperature not deviating from rated current by more than shown in table		N
11	**HEATING**		P
11.1	No excessive temperatures in normal use		P
11.2	Placing and mounting of appliance as described:		P
	- built-in		N
	- against a wall		N
	- suspended in still air		N
	- on the floor or table		N
	- fixed to a ceiling		N
	- on its stand		P

Clause	Requirement - Test	Result - Remark	Verdict
11.3	Temperature rises determined by thermocouples or resistance method		P
11.4	Heating appliances operated under normal operation at 1,15 times rated power input		N
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage		P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage		N
11.7	Appliances are operated for a duration corresponding to the most unfavourable conditions of normal use		P
11.8	Protective devices do not operate		P
	Sealing compound not flowing out		P
	Temperatures not exceeding values in table 3	(see appended table and graph)	P
13	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		P
13.1	Leakage current not excessive and electric strength adequate		P
13.2	Leakage current measured by means of circuit described in Annex G		P
	Leakage current measurements	(see appended table)	P
13.3	Electric strength test of insulation	(see appended table)	P
	No breakdown during the test		P
15	**MOISTURE RESISTANCE**		P
15.1	Enclosure provides the degree of moisture protection according to classification of appliance (tests 15.1.1 and 15.1.2)	IPX5	P
	Withstand electric strength test specified in 16.3		P
	No trace of water on insulation which can result in a reduction of distances and clearances below values specified in 29.1		P
15.1.1	Appliance subjected to test as specified		P
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N
	Built-in appliance installed according to the manufacturer's instruction		N
	Other appliances tested as specified		P
15.2	Spillage of liquid does not affect the electrical insulation		N
	Overfilling test with additional amount of liquid		N
	Withstand electric strength test in 16.3		N
	No trace of water on insulation which can result in reduction of distances and clearances below values specified in 29.1		N
15.3	Humidity treatment for 48 h		P
	Withstanding the test of Cl. 16		P
16	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		P
16.1	No excessive leakage current and adequate insulation and electric strength (tests 16.2 and 16.3)		P
16.2	Leakage current measurements	(see appended table)	P

Clause	Requirement - Test	Result - Remark	Verdict
16.3	Electric strength tests (values in table 5)	(see appended table)	P
17	**OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS**		N
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use		N
	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
	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
	Temperature of the winding not exceeding the value specified in table 6		N
19	**ABNORMAL OPERATION**		P
19.1	The risk of fire or mechanical damage under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe		N
19.2	Appliances with heating elements: test conditions as in Cl. 11, with restricted heat dissipation; test voltage (V): power input of 0,85 times rated power input		N
19.3	Test of 19.2 repeated; test voltage (V): power input of 1,24 times rated power input		N
19.4	Test conditions as in Cl. 11, the power input being 1,15 times rated power input, any control limiting the temperature during tests of Cl. 11 short-circuited		N
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
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N
19.6	Appliances with PTC heating elements tested as specified. Supplied at rated voltage, establishing steady conditions, then the voltage increased in steps by 5% until 1,5 times rated voltage is reached or until the heating element ruptures		N
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque or locking moving parts		P
	Locked rotor, motor capacitors open circuited or short-circuited, if required		P
	Appliances with timer or controller supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed	TL = 132 s	P
	Test period at rated voltage (s or min) or until steady state conditions established		N
	Winding temperatures not exceeding limiting temperature; type of appliance; insulation class; measured temperature (°C)	(see appended table)	P
19.8	Three-phase motors operated at rated voltage with one phase disconnected		N
19.9	Running overload test of appliance incorporating motors at rated voltage; motor windings insulation class; measured temperature (°C); allowed temperature (°C)	(see appended table)	P
19.10	Series motor operated at 1,3 times rated voltage for 1 min		N

Clause	Requirement - Test	Result - Remark	Verdict
	Parts not ejected from the appliance during test		N
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
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:		N
	- 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
	- 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
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:		N
	a) short-circuit of creepage distances and clearances between live parts of different potential, if these distances are less than the values specified in 29.1, unless the relevant part is adequately encapsulated		N
	b) open circuit at the terminals of any component		N
	c) short-circuit of capacitors, unless they comply with IEC 384-14 or 14.2 of IEC 65		N
	d) short-circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition is not applied between the circuits of an optocoupler		N
	e) failure of triacs in the diode mode		N
	f) failure of an integrated circuit. In this case 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
	During and after each test the following is checked:		N
	- the temperature rise of the windings do not exceed the values specified in table 6		N
	- the appliance complies with the conditions specified in 19.13		N
	- live parts not accessible to the test finger or test pin as specified in Cl. 8		N
	- any current flowing through protective impedance not exceeding the limits specified in 8.14		N
	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:		N
	- the material of the printed circuit board withstands the burning test of 20.1 of IEC 65		N
	- any loosened conductor does not reduce the creepage distances or clearances between live part and accessible metal parts		N
	- the appliance withstands the tests of 19.11.2 with open circuited conductor bridged		N
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 127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A)		N

Clause	Requirement - Test	Result - Remark	Verdict
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 7	(see appended table)	P
	Enclosures not deformed to such an extent that compliance with Cl. 8 is impaired		P
	Appliance still operable and complying with 20.2		P
	Appliance, other than Class III, withstands the electric strength test of 16.3, however, the test voltage being:		P
	- basic insulation: 1000 V		P
	- supplementary insulation: 2750 V		N
	- reinforced insulation: 3750 V		N
20	**STABILITY AND MECHANICAL HAZARDS**		P
20.1	Adequate stability		N
	Tilting test through an angle of 10° (appliance placed on an inclined plane/horizontal plane); appliance does not overturn		N
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 7		N
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury		P
	Protective enclosures, guards and similar parts are non-detachable		P
	Adequate mechanical strength and fixing of protective enclosures		P
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard, if unexpectedly reclosed		P
	Not possible to touch dangerous moving parts with test finger		P
21	**MECHANICAL STRENGTH**		P
	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		N
	If necessary, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N
	If necessary, repetition of groups of three blows on a new sample		P
22	**CONSTRUCTION**	IP5X	NE
22.1	Appliance marked with the first numeral of the IP system: relevant requirements of IEC 529 are fulfilled		P
22.2	Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:		N
	- a supply cord fitted with a plug		N
	- a switch complying with 24.3		P
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided		

Clause	Requirement - Test	Result - Remark	Verdict
	- an appliance coupler		N
	Single-phase Class I appliance with heating elements, intended to be permanently connected to fixed wiring, incorporating single-pole switches or single-pole protective devices for the disconnection of the heating element(s): the switches/devices being connected in the phase conductor		N
22.3	Appliance provided with pins: no undue strain on socket-outlets		N
	Applied torque not exceeding 0,25 Nm		N
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		P
22.5	No risk of electric shock when touching the pins of the plug		N
22.6	Electrical insulation not affected by condensing water or leaking liquid		P
	Electrical insulation of Class II appliances not affected in case of a hose rupture or seal leak		N
22.7	Adequate safeguards against the risk of excessive pressure in appliances provided with steam-producing devices		N
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 which are likely to be cleaned in normal use		P
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances		N
	Adequate insulating properties of oil or grease to which insulation is exposed		P
22.10	Location or protection of reset buttons of non-self-resetting controls is so that accidental resetting is unlikely		N
22.11	Reliable fixing of non-detachable parts which provide the necessary degree of protection against electric shock, moisture or contact with moving parts		P
	Obvious locked position of snap-in devices used for fixing such parts		N
	No deterioration of the fixing properties of snap-in devices used in parts which are likely to be removed during installation or servicing		N
	Tests	Push 50N, pull 50N and torque 4 Nm	P
22.12	Handles, knobs etc. fixed in a reliable manner		P
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		N
	Axial force 15 N applied to parts, the shape of which being so that an axial pull is unlikely to be applied		N
	Axial force 30 N applied to parts, the shape of which being so that an axial pull is likely to be applied		P
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
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

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
	Cord reel tested with 6000 operations, as specified		N
	Electric strength test of 16.3, voltage of 1000 V applied		N
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N
22.18	Current-carrying parts and other metal parts resistant to corrosion under normal conditions of use		P
22.19	Driving belts not used as electrical insulation		N
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible		N
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless impregnated		P
22.22	Appliance shall not contain asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements adequately supported		N
	In case of rupture, the heating conductor is unlikely to come in contact with earthed metal parts or accessible metal parts		N
22.25	Sagging heating conductors cannot come into contact with accessible metal parts		N
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
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N
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
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of protection against electric shock is maintained after installation		N
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		N
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		N
22.31	Creepage distances and clearances over supplementary and reinforced insulation not reduced below values specified in 29.1 as a result of wear		N
	Creepage distances and clearances over supplementary or reinforced insulation not reduced to less than 50% of values specified in 29.1 if wires, screws etc. becomes loose		N
22.32	Supplementary and reinforced insulation designed or protected against deposition of dirt or dust		N
	Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation		P

Clause	Requirement - Test	Result - Remark	Verdict
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.1		N
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N
22.33	Conductive liquids which are or may become accessible in normal use are not in direct contact with live parts		P
	Conductive liquids are not in direct contact with basic insulation or reinforced insulation in Class II constructions		N
22.34	Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed		P
22.35	Handles, levers and knobs, held or actuated in normal use, not becoming live in the event of an insulation fault		P
	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
	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		P
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
22.37	Capacitors in Class II appliances not connected to accessible metal parts, unless complying with 22.42		N
	Metal casings of capacitors in Class II appliances separated from accessible metal parts by supplementary insulation, unless complying with 22.42		N
22.38	Capacitors not connected between the contacts of a thermal cut-out		P
22.39	Lamp holders only used for the connection of lamps		N
22.40	Motor-operated appliances and combined appliances, intended to be moved while in operation or which have accessible moving parts, are fitted with a switch to control the motor		N
	The actuating member of this switch easily visible and accessible		N
22.41	Appliances shall not incorporate components containing liquid mercury		P
22.42	Protective impedance consisting of at least two separate components		N
	Values specified in 8.1.4 not exceeded if any one of the components is short-circuited or open circuited		N
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N
22.Z1	Appliance enclosure not shaped and decorated so that the appliance is likely to be treated as a toy by children		P
22.Z2	Fully halogenated chlorofluorocarbons (CFC's) not used		P
23	**INTERNAL WIRING**		P
23.1	Wireways smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		P

Clause	Requirement - Test	Result - Remark	Verdict
	Wire holes in metal well rounded or provided with bushings		P
	Wiring effectively prevented from coming into contact with moving parts		P
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges or corners		N
	Beads inside flexible metal conduits contained within an insulating sleeve		N
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		P
	Flexible metallic tubes not causing damage to insulation of conductors		N
	Open-coil springs not used		P
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N
	No damage after 10 000 flexings		N
	Electric strength test, 1000 V between live parts and metal parts		N
23.4	Bare internal wiring sufficiently rigid and fixed		N
23.5	The basic 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		P
23.7	Only the colour combination green/yellow used 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		P
	clamping means so constructed that there is no risk of bad contact due to cold flow of the solder		N
24	**COMPONENTS**		P
24.1	Components comply with safety requirements in relevant IEC standards	(see appended table)	P
	List of components	(see appended table)	P
24.1.1	Capacitors likely to be subjected to the supply mains voltage and used for radio interference suppression or voltage dividing, comply with Annex ZC		N
	Small lampholders: compliance with requirements for E10 lampholders		N
	Safety isolating transformers comply with IEC 742		N
	Safety isolating transformers tested with the appliance comply with Annex ZD		N
	Appliance couplers for IPX0 appliances: compliance with IEC 320		N
	Other appliance couplers: compliance with IEC 309		N
	Automatic controls: compliance with IEC 730, unless tested with the appliance		P

Clause	Requirement - Test	Result - Remark	Verdict
	Switches: compliance with IEC 1058, unless tested with the appliance		N
24.1.2	Automatic controls complying with IEC 730: additional tests according to this standard and 11.3.5 to 11.3.8 and Cl. 17 of IEC 730 as type 1 controls, the cycles of operation being:		P
	- thermostats: 10 000		N
	- temperature limiters: 1000		N
	- self-resetting thermal cut-outs: 300		P
	- non-self-resetting thermal cut-outs: 30		N
	- energy regulators: 3000		N
	- timers: 10 000		N
24.1.3	For switches, the test of 17.2.7 of IEC 1058-1 carried out for 10 000 cycles of operation		N
	Switches not separately tested and found to comply with IEC 1058-1 under conditions covering those occurring in the appliance, comply with Annex ZE		N
	Switches for no-load-operation and operable only with the aid of a tool, are not subjected to the tests of Cl. 17 of IEC 1058-1		N
	This applies also to switches operated by hand, and with interlock for no-load-operation		N
	Switches without this interlock subjected to the test of 17.2.7 of IEC 1058-1 for 100 cycles of operation		N
24.1.4	Components marked with their operating characteristics are used in the appliance in accordance with these markings		P
	Components which have to comply with other standards are tested separately, according to the relevant standard		P
	Components used within the limits of its marking, tested in accordance with conditions occurring in the appliance		N
	Components not marked, or not used in accordance with its marking, or no IEC standard exists, tested under the conditions occurring in the appliance		N
	Components not mentioned in table 3 tested as part of the appliance		N
24.1.5	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	425V	P
24.2	No switches or automatic controls in flexible cords		P
	No devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		P
	No thermal cut-outs which can be reset by soldering		P
24.3	Switch intended for all-pole disconnection of stationary appliances is directly connected to the supply terminals, having a contact separation of at least 3 mm in each pole		N
24.4	Plugs and socket-outlets for heating elements and extra-low voltage circuits, not interchangeable with plugs, and		N
	socket-outlets or with connectors and appliance inlets complying with IEC 83 or IEC 320, respectively		N

Clause	Requirement - Test	Result - Remark	Verdict
24.5	Plugs and socket-outlets etc. for interconnection cords, not interchangeable with plugs and socket-outlets or connectors and appliance inlets complying with IEC 83 or IEC 320, respectively, if direct supply from the mains could give rise to a hazard		N
24.6	Motors connected to the supply mains and having inadequate basic insulation for the rated voltage of the appliance, comply with the requirements of Annex F		N
25	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS**		P
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		N
	- supply cord fitted with a plug		N
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance		N
	- pins for insertion into socket-outlets		N
25.2	Appliance not provided with more than one means of connection to the supply		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
25.3	Connection of supply wires for appliance intended to be permanently connected to fixed wiring possible after the appliance has been fixed to its support	Supply cord fitted without plug	P
	Appliance provided with a set of terminals for the connection of cables of fixed wiring, cross-sectional areas specified in 26.2		N
	Appliance provided with a set of terminals allowing the connection of a flexible cord		N
	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
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimensions according to table 8		N
	Introduction of conduit or cable does not affect the protection against electric shock or reduce creepage distances and clearances below values specified in 29.1		N
25.5	Method for assemble supply cord with the appliance:		P
	- type X attachment		N
	- type Y attachment		P
	- type Z attachment, if allowed in part 2		N
	Type X attachment other than those with a specially prepared cord, shall not be used for flat twin tinsel cords		N
25.6	Plugs fitted with only one flexible cord		N
	Supply cords of single-phase portable appliances having a rated current not exceeding 16 A, provided with a plug complying with the following Standard Sheets of IEC 83:		N
	- for Class I appliances: Standard Sheet C2b, C3b or C4		N
	- for Class II appliances: Standard Sheet C5 or C6		N

Clause	Requirement - Test	Result - Remark	Verdict
25.7	Appliance supply cord not lighter than:		P
	- braided cord (245 IEC 51)		N
	- ordinary tough rubber sheathed cord (245 IEC 53)		N
	- ordinary polychloroprene sheathed flexible cord (245 IEC 57)	A05RN-F	P
	- flat twin tinsel cord (227 IEC 41)		N
	- light polyvinyl chloride sheathed cord (227 IEC 52), appliance not exceeding 3 kg		N
	- ordinary polyvinyl chloride sheathed cord (227 IEC 53), appliance exceeding 3 kg		N
	- rubber insulated and sheathed cords (60245 IEC 86)		N
	- rubber insulated crosslinked PVC sheathed cord (60245 IEC 87)		N
	- crosslinked PVC insulated and sheathed cord (60245 IEC 88)		N
	Temperature rise of external metal parts exceeding 75 K, PVC cord not used		N
	PVC cord used: appliance so constructed that the supply cord is not likely to touch external metal parts in normal use		N
	PVC supply cord appropriate for higher temperatures, type Y or type Z attachment used		N
25.8	Nominal cross-sectional area of supply cords according to table 9; rated current (A); cross-sectional area (mm^2)	1A 4x0.75 mm^2	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		P
	clamping means so constructed that there is no risk of bad contacts due to cold flow of the solder		N
25.12	Moulding the cord to part of the enclosure does not damage the insulation of the supply cord		P
25.13	Inlet opening provided with a bushing, or is so constructed, that there is no risk of damage to the supply cord when introduced		P
25.13.1	Inlet bushing so shaped as to prevent damage to the supply cord		P
	Inlet bushing not detachable		P
25.13.2	At inlet openings, the insulation between the conductor of a supply cord and the enclosure of the appliance is consisting of the insulation of the conductor, and in addition:		P
	- for Class 0 appliances: at least one separate insulation		N
	- for other appliances: at least two separate insulations		P
	Only one separate insulation is required if the enclosure at the inlet opening is of insulating material		N
	The separate insulation consists of:		P
	- the sheath of a supply cord at least equivalent to that of a cord complying with IEC 227 or 245		P
	- a lining or bushing of insulating material complying with the requirements of 29.2 for supplementary insulation		P

Clause	Requirement - Test	Result - Remark	Verdict
25.14	Supply cords adequately protected against excessive flexing		N
	Flexing test; applied force (N); number of flexings		N
	The test does not result in:		N
	- short-circuit between the conductors		N
	- breakage of more than 10% of the strands of any conductor		N
	- separation of the conductor from its terminal		N
	- loosening of any cord guard		N
	- damage, within the meaning of the standard, to the cord or the cord guard		N
	- broken strands piercing the insulation and becoming accessible		N
25.15	Conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorages		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 (Nm) (not on automatic cord reel)	Pull 100N, torque 0.35 Nm	P
	Max. 2 mm displacement of the cord, and conductors not moved more than 1 mm in the terminals		P
	Creepage distances and clearances not reduced below values specified in 29.1		P
25.16	Cord anchorages for type X attachments so constructed and located that:		N
	- replacement of the cord is easily possible		N
	- it is clear how the relief from strain and the prevention of twisting are obtained		N
	- they are suitable for different types of cord		N
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from		N
	- accessible metal parts by supplementary insulation		N
	- the cord is not clamped by a metal screw which bears directly on the cord		N
	- at least one part of the cord anchorage securely fixed to the appliance, unless part of a specially prepared cord		N
	- screws which have to be operated when replacing the cord do not fix any other component, if applicable		N
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N
	- 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
	- for Class II appliances: they are of insulating material, or if of metal, they are insulated from accessible metal parts by supplementary insulation		N
25.17	Adequate cord anchorages for type Y and Z attachment		P
25.18	Cord anchorages only accessible with the aid of a tool, or		N

Clause	Requirement - Test	Result - Remark	Verdict
	so constructed that the cord only can be fitted with the aid of a tool		P
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N
	Tying the cord into a knot or tying the cord with string not used		N
25.20	Conductors of the supply cord for type Y and Z attachment adequately additionally insulated		P
25.21	Space for supply cable for fixed wiring or supply cord for type X attachment constructed to permit checking of conductors with respect to correct positioning and connection before fitting any cover, no risk of damage, no contact with accessible metal parts if a conductor becomes loose, etc.		N
	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
25.22	Appliance inlet:		N
	- live parts not accessible during insertion or removal		N
	- connector can be inserted without difficulty		N
	- the appliance is not supported by the connector		N
	- is not for cold conditions if temperature rise of external metal parts exceeds 75 K, unless the supply cord is not likely to touch such metal parts		N
25.23	Interconnection cords comply with the requirements for the supply cord, except as specified		N
	If necessary, electric strength test of 16.3		N
25.24	Detachable interconnection cords: no live parts accessible when connection is disconnected		N
25.25	Interconnection cords not detachable without the aid of a tool		N
26	**TERMINALS FOR EXTERNAL CONDUCTORS**		P
26.1.1	Appliances with type X attachment and appliances for connection to fixed wiring provided with terminals in which connection is made by means of screws, nuts or equally effective devices	Screws connexion	P
	Screws and nuts serve only to clamp supply conductors, except		P
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N
26.1.2	For type X attachment soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone		N
	Soldering alone used, barriers provided, creepage distances and clearances satisfactory if the conductor becomes free		N
	For type Y and Z attachment: soldered, welded, crimped and similar connections used		N
	For Class II appliances: the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N
	For Class II appliances: soldering, welding or crimping alone used, barriers provided, creepage distances and clearances satisfactory if the conductor becomes free		N

Clause	Requirement - Test	Result - Remark	Verdict
	Conductors cannot be loosened without the aid of a tool		N
	Clamping means adequately secured against accidental loosening		P
27.3	Earth connection "made before" and "separated after" current-carrying connections		N
	Current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		P
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		P
	Parts of steel providing earthing continuity provided at the essential areas with an electroplated coating, thickness at least 5 µm		P
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		P
	In case of aluminium alloys precautions taken to avoid risk of corrosion		P
27.5	Low resistance of connection between earthing terminal and earthed metal parts		P
	Resistance not exceeding 0,1 Ω at the specified low-resistance test		P
27.Z1	In hand-held appliances printed conductors of printed circuit boards not used to provide earthing continuity		N
	In other appliances at least two tracks are used with independent soldering points, and		N
	the appliance complies with the requirements of 27.5 for each circuit, and		N
	the material of the printed board complies with IEC 249-2-4 or IEC 249-2-5		N
28	**SCREWS AND CONNECTIONS**		P
28.1	Fixings and electrical connections 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
	Screws of insulating material not used for any electrical connection		P
	Screws transmitting electrical contact only screwing into metal		P
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		P
	Type X attachment, screws to be removed for replacement of supply cord, or for users maintenance, not of insulating material if their replacement by a metal screw can impair basic insulation		N
	Screws and nuts transmitting contact pressure subjected to torque test as specified, applying torque as shown in table 12	(see appended table)	P
	The test is not carried out on screws and nuts transmitting contact pressure for earthing continuity provided at least two screws or nuts are used		P
28.2	Contact pressure not transmitted through insulating material liable to shrink or distort, unless shrinkage or distortion compensated		P
	This requirement does not apply to electrical connections in circuits carrying a current not exceeding 0,5 A		N

Clause	Requirement - Test	Result - Remark	Verdict
28.3	Space-threaded (sheet metal) screws only used for the connection of current-carrying parts if they clamp these parts directly in contact with each other		P
	Thread-cutting (self-tapping) screws not used for electrical connection of current-carrying parts, unless generating a full form standard machine screw thread		P
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer unless the thread is formed by a swaging action		N
	Use of thread-cutting and space-threaded screws for earthing continuity according to specification		P
28.4	Screws and nuts making mechanical connection between different parts of the appliance, and also making electrical connection or providing earthing continuity secured against loosening		P
	Rivets for current-carrying connections subject to torsion secured against loosening		N
29	**CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH INSULATION**		P
29.1	Creepage distances and clearances not less than specified in table 13	(see appended table)	P
	Resonant voltage between the point where a winding and a capacitor are connected together and metal parts separated from live parts by basic insulation only, creepage distances and clearances not less than the values specified for the value of the voltage produced by the resonance		N
	Values increased by 4 mm in case of reinforced insulation when resonance voltage		N
29.2	Distances through insulation not less than 1,0 mm for supplementary insulation, and 2,0 mm for reinforced insulation		P
29.2.1	Supplementary insulation applied in thin sheet form, 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 for supplementary insulation		N
	Reinforced insulation applied in thin sheet form, other than mica or similar scaly material, consists of at least three layers, and any two of the layers together withstand the electric strength test of 16.3 for reinforced insulation		N
29.2.2	Supplementary or reinforced insulation inaccessible and does not exceed the maximum permissible temperature values		N
	Supplementary or reinforced insulation, after conditioning as specified, withstands the electric strength test as specified in 16.3, both at the oven temperature and room temperature		N
30	**RESISTANCE TO HEAT, FIRE AND TRACKING**		P
30.1	See Annex H		P
	Relevant external parts of non-metallic material		N
	Parts supporting live parts and parts providing supplementary or reinforced insulation sufficiently resistant to heat		N
	Ball-pressure test with a force of 20 N, diameter of impression not exceeding 2 mm	(see appended table)	N
30.2	Relevant parts of non-metallic material adequately resistant to ignition and spread of fire		P
30.2.1	Possible burning test of relevant parts according to Annex J		N

Clause	Requirement - Test	Result - Remark	Verdict
	Glow-wire test of Annex K made at temperature 550 °C	(see appended table)	P
30.2.2	Appliances operated while attended, parts of insulating material supporting connections carrying a current exceeding 0,5 A in normal operation, subjected to the glow-wire test of Annex K at 650 °C		N
30.2.3	Appliances operated while unattended, possible bad-connection test according to Annex L		N
	Glow-wire test of Annex K made at 850 °C		N
	Possible needle-flame test according to Annex M		N
30.2.4	Parts of non-metallic material within a distance of 50 mm from parts not withstanding the tests of 30.2.2 or 30.2.3, subjected to the needle-flame test of Annex M		N
30.3 ⊗	Relevant insulating material have adequate resistance to tracking		NE
	Tracking test at 175 V according to Annex N		NE
	Tracking test at 250 V according to Annex N		NE
	No hazard other than fire, tracking test at 175 V according to Annex N, and in addition needle-flame test of surrounding parts according to Annex M		NE
	Possible needle-flame test of non-metallic material		NE
31	**RESISTANCE TO RUSTING**		P
	Relevant ferrous parts adequately protected against rusting		P
32	**RADIATION, TOXICITY AND SIMILAR HAZARDS**		P
	Appliance does not emit harmful radiation		P
	Appliance does not present a toxic or similar hazard		P
A	**ANNEX A, NORMATIVE REFERENCES**		P
	The annex contains a list of standards which are referred to, and thus become part of, this standard		P
B	**ANNEX°B, APPLIANCES POWERED BY RECHARGEABLE BATTERIES**		N
	This annex applies to appliances powered by rechargeable batteries which are recharged in the appliance.		N
	All clauses of this standard apply unless otherwise specified in this annex		N
B.4	General conditions for the tests		N
B.4.101	Unless otherwise specified, when appliances are supplied from the supply mains they are tested as specified for motor-operated appliances		N
B.7	Marking and instructions		N
B.7.1	The battery compartment of appliances incorporating batteries which are intended to be replaced by the user, shall be marked with the battery voltage and the polarity of the terminals		N
B.7.12	The instructions shall give information regarding charging		N
	The instructions for appliances incorporating batteries which are intended to be replaced by the user shall include the following:		N
	- the type reference of the battery		N

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Clause	Requirement - Test	Result - Remark	Verdict
	- the orientation of the battery with regard to polarity		N
	- the method of replacing batteries		N
	- details regarding safe disposal of used batteries		N
	- warning against using non-rechargeable batteries		N
	- how to deal with leaking batteries		N
	The instructions for appliances incorporating a battery that contains materials which are hazardous to the environment, shall give details on how to remove the battery and shall state that:		N
	- the battery must be removed from the appliance before it is scrapped		N
	- the battery is to be disposed of safely		N
	- the appliance must be disconnected from the supply when removing the battery		N
B.7.15	Markings, other than those associated with the battery, shall be placed on the part of the appliance which is connected to the supply mains		N
B.8	Protection against access to live parts		N
B.8.2	Appliances having batteries replaceable by the user and which cannot be operated without the battery in position are only required to have basic insulation between live parts and parts that are accessible during and after removal of the battery		N
B.11.7	The battery is charged for the period stated in the instructions for use or 24 h, whichever is longer		N
B.19	Abnormal operation		N
B.19.1	Appliances are also subjected to the tests of B.19.101, B.19.102, and B.19.103		N
B.19.10	Not applicable		N
B.19.101	Appliances are supplied at rated voltage and charged for 168 h		N
B.19.102	For appliances having batteries which can be removed without the aid of a tool, the terminals of which can be short-circuited by a thin straight bar, the terminals of the battery are short-circuited, the battery being fully charged		N
B.19.103	Appliances having batteries replaceable by the user are supplied at rated voltage and operated under normal operation but with the battery removed or in any position allowed by the construction		N
B.21	Mechanical strength		N
B.21.101	Appliances having pins for insertion into socket-outlets, shall have adequate mechanical strength		N
	The part of the appliance incorporating the pins is subject to the free fall test, procedure 2 of IEC 68-2-32		N
	The number of falls is:		N
	- 100, if the mass of the part does not exceed 250 g		N
	- 50, if the mass of the part exceeds 250g		N
	After the test, the requirements of 8.1, 15.1.1, 16.3 and 29.1 shall be met		N

Clause	Requirement - Test	Result - Remark	Verdict
B.22	Construction		N
B.22.3	Appliances having pins for insertion into socket-outlets are tested as fully assembled as possible		N
B.25	Supply connection and external flexible cords		N
B.25.13.2	The requirement is not applicable to interconnection cords subjected to safety extra-low voltage		N
B.30	Resistance to heat, fire and tracking		N
B.30.2	For parts of the appliance which are connected to the supply mains during the charging period, 30.2.3 applies		N
	For other parts, 30.2.2 applies		N
C	**ANNEX C, AGEING TEST ON MOTORS**		N
	Test carried out when doubt with regard to the classification of the insulating system of a motor winding		N
E	**ANNEX E, MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		P
	Methods of measuring creepage distances and clearances, specified in 29.1, indicated in 10 different cases		P
F	**ANNEX F, MOTORS NOT ISOLATED FROM THE SUPPLY MAINS AND HAVING BASIC INSULATION NOT DESIGNED FOR THE RATED VOLTAGE OF THE APPLIANCE**		N
	Motors having a working voltage not exceeding 42 V, not being isolated from the supply mains, and having basic insulation not designed for the rated voltage of the appliance are tested according to this annex		N
	All clauses of this standard apply, unless otherwise specified in this annex		N
F.8	Protection against accessibility to live parts		N
F.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
F.16	Leakage current and electric strength		N
F.19	Abnormal operation		N
F.19.101	Appliance operated at rated voltage with each of the following defects:		N
	- short-circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N
	- open circuit of the supply to the motor		N
	- open circuit of any shunt resistor during operation of the motor		N
F.22	Construction		N
F.22.101	Class I appliance 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

G	**ANNEX G, CIRCUIT FOR MEASURING LEAKAGE CURRENTS**		P
	A suitable circuit for measuring leakage currents is shown		P
H	**ANNEX H, SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30**		P
J	**ANNEX J, BURNING TEST**		N
	The burning test is made in accordance with IEC 707, and method FH is used		N
	Category FH3 applies, the maximum burning rate being 40 mm/min		N
K	**ANNEX K, GLOW-WIRE TEST**		P
	The glow-wire test is made in accordance with IEC 695-2-1 (clause numbers between parentheses refer to IEC 695-2-1)		P
(4)	Description of test apparatus: the last paragraph before the note is replaced		P
(5)	Severities: the duration of application of the tip of the glow-wire to the specimen being (30 ± 1) s		P
(10)	Observations and measurements: item c) does not apply		P
L	**ANNEX L, BAD-CONNECTION TEST WITH HEATERS**		N
	The bad-connection test with heaters is made in accordance with IEC 695-2-3 (clause numbers between parentheses refer to IEC 695-2-3)		N
(3)	General description of the test: additions concerning crimped connections		N
(4)	Description of test apparatus: replacements of some of the test specifications and the first paragraph of the note		N
(6)	Severities: the duration of application of the test power being (30 ± 1) min		N
(8)	Test procedure: 8.6 replaced		N
(11)	Information to be given in the relevant specification: item h), the first dashed paragraph, does not apply		N
M	**ANNEX M, NEEDLE-FLAME TEST**		N
	The needle-flame test is made in accordance with IEC 695-2-2 (clause numbers between parentheses refer to IEC 695-2-2)		N
(4)	Description of the apparatus: the sixth paragraph is replaced		N
(5)	Severities: the duration of application of the test flame is (30 ± 1) s		N
(8)	Test procedure: some changes in the test specifications		N
(10)	Evaluation of the test results: addition in the test specification		N
N ⊗	**ANNEX N, PROOF TRACKING TEST**		NE
	The proof tracking test is made in accordance with IEC 112 (clause numbers between parentheses refer to IEC 112)		NE
(3)	Test specimen: the last sentence of the first paragraph does not apply		NE
(5)	Test apparatus: some changes in the subclauses		NE

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Clause	Requirement - Test	Result - Remark	Verdict
(6)	Procedure: adjustments of the test specifications		NE
P ⊗	**ANNEX P, SEVERITY OF DUTY CONDITIONS OF INSULATING MATERIAL WITH RESPECT TO THE RISK OF TRACKING**		NE
	Recognition of different duty conditions with respect to the risk of tracking		NE
ZA	**ANNEX ZA, SPECIAL NATIONAL CONDITIONS**		P
7.12	DENMARK: requirements regarding marking tag of power supply cord and connecting of earthing wire		P
19.5	NORWAY: the test is also applicable to appliances intended to be permanently connected to fixed wiring		N
19.11.2	AUSTRIA: requirements regarding appliances having circuits which under fault conditions may cause earth-leakage currents having a d.c. component exceeding 5 mA and exceeding 20% of the total earth-leakage		N
22.2	FRANCE, NORWAY: The second paragraph of this subclause dealing with single-phase Class I appliances with heating elements is not applicable due to the supply system		N
25.6	BELGIUM, FRANCE, GREECE, UNITED KINGDOM: plugs according to Standard Sheet C2b not allowed		N
	AUSTRIA, GERMANY, FINLAND, ICELAND, IRELAND, ITALY, LUXEMBOURG, NETHERLANDS, NORWAY, PORTUGAL, SPAIN, SWEDEN, SWITZERLAND, UNITED KINGDOM: plugs according to Standard C3b not allowed		N
	DENMARK: Supply cords of single-phase portable appliances having a rated current not exceeding 10 A provided with a plug according to the following:		N
	Class I appliances: Section 107-2-DI Standard Sheet DK2-1a		N
	For appliances covered by a Part 2 of EN 60 335, also plugs in accordance with IEC 83, Standard Sheet C2b, C3b or C4 are allowed		N
	Class II appliances: IEC 83, Standard Sheet C5 or C6		N
	Stationary single-phase appliances, having a rated current not exceeding 10 A, and provided with a plug, the plug is in accordance with the requirements above		N
	Multi-phase appliances and single-phase appliances having a rated current exceeding 10 A, and provided with a plug, the plug is in accordance with the requirements below:		N
	Class I appliances: Section 107-2-D1, Standard Sheet DK6-1a/EN 60 309-2, Standard Sheet 2-II, 2-IV		N
	Class II appliances: Section 107-2-D1, Standard Sheet DK6-1a/2-II, 2-IV		N
	IRELAND: plug is in accordance with Standard Sheets B1 (15A), B2 and C2b		N
	SPAIN: Appliances having a rated current not exceeding 6 A, provided with a plug complying with UNE 20 315:		N
	for Class I appliances: Figure 7C		N
	for Class II appliances: Figure 15A		N
	Class I appliances having a rated current not exceeding 16 A, provided with a plug complying with Standard UNE 20 315 Figure 7B		N

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Clause	Requirement - Test	Result - Remark	Verdict
	UNITED KINGDOM: plug according to Standard Sheet B2 or C5 used (refer to Annex ZB)		N
	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 884-1 and one of the following dimension sheets:		N
	SEV 6532-2:1991 plug type 15 3P+N+PE 250/400 V, 10 A		N
	SEV 6532-2:1991 plug type 11 L+N 250 V, 10 A		N
	SEV 6532-2:1991 plug type 12 L+N+PE 250 V, 10 A		N
25.8	IRELAND, UNITED KINGDOM: replacement of figures (rated current/cross-sectional area) in the table		P
ZB	**ANNEX ZB, A-DEVIATIONS**		N
3	SWITZERLAND: information about batteries		N
7.1	ITALY: the voltage is 220 V/380 V		N
	SPAIN: the voltages are 127 V/220 V and 220 V/380 V		N
7.12	IRELAND: information about required label attached to the supply cord, concerning the colour code of the wires		N
22.22	GERMANY: the amount of asbestos in the mass containing asbestos not exceeding 0,1%		N
	FINLAND: certain types of asbestos not used		N
24	SWEDEN: components containing mercury not used		N
25.6	UNITED KINGDOM: regulations concerning plugs to be fitted to domestic appliances		N
ZC	**ANNEX ZC, CAPACITORS**		N
	The following clauses and subclauses of IEC 384-14 apply to capacitors likely to be permanently subjected to the supply mains voltage and used for radio interference suppression or for voltage dividing purposes with the following modifications		N
1.5	Terminology		N
1.5.3	Applicable, capacitors of Class X tested as capacitors of Class X2		N
1.5.4	Applicable		N
1.6	Marking		N
	Items a) and b) applicable		N
3	Quality assessment procedures		N
3.4.3.2	Tests. Tab. 2 is applicable as follows:		N
	- group 0: subclauses 4.1, 4.2.1, and 4.2.5		N
	- group 1A: subclause 4.1.1		N
	- group 2: subclause 4.12		N
	- group 3: subclauses 4.13 and 4.14		N
	- group 6: subclause 4.17		N
	- group 7: subclauses 4.18		N

Clause	Requirement - Test	Result - Remark	Verdict
4.	Test and measurements procedures		N
4.1	Visual examination and check of dimensions		N
	Applicable		N
4.2	Electrical tests		N
4.2.1	Applicable		N
4.2.5	Applicable		N
4.2.5.2	Only Tab. 9 is applicable. The values for test A apply, however for capacitors in heating appliances the values for test B or C apply		N
4.12	Applicable		N
4.13	Applicable		N
4.14	Applicable with its subclauses 4.14.1, 4.14.3 and 4.14.7		N
4.14.7	Addition; only insulation resistance and voltage proof are checked (see Tab. 14) together with a visual examination to ensure that there is no visible damage		N
4.17	Applicable		N
4.18	Applicable		N
ZD	**ANNEX ZD, SAFETY ISOLATING TRANSFORMERS**		N
	Safety isolating transformers, tested with the appliance, comply with this standard and the following additional requirements		N
7	Marking and instructions		N
7.1	Marking of transformers for specific use:		N
	- name		N
	- trademark/identification mark of manufacturer or responsible vendor		N
	- model or type reference		N
17	Overload protection of transformers and associated equipment		N
	The temperature limits specified for the windings do not apply to fail-safe transformers		N
	Such transformers comply with 14.5 of EN 60 742		N
22	Construction		N
22.501	Subclause 8.6 of EN 60 742 applicable		N
29	Creepage distances, clearances and distances through insulation		N
29.1	The distances specified in Table XV of EN 60 742, items 1a, 1c and 2 apply		N
ZE	**ANNEX ZE, SWITCHES**		N
	Switches tested with the appliance comply with this standard and the following clauses of IEC 1058-1, as modified		N
	- the tests of IEC 1058-1 carried out under the conditions occurring in the appliance, unless		N
	- otherwise specified, the tests are carried out on the switch incorporated in the appliance		N

Clause	Requirement - Test	Result - Remark	Verdict
	- before being tested in the appliance, switches are operated 20 times without load		N
8	Marking and documentation		N
	Switches are not required to be marked except, that incorporated switches shall be marked with the manufacturer's name or trademark and the type reference		N
13	Mechanism		N
	Applicable		N
15	Insulation resistance and electric strength		N
15.1	Not applicable		N
15.2	Not applicable		N
15.3	Applicable for full disconnection micro-disconnection		N
17	Endurance		N
	Applicable, at the end of the tests, temperature rise of the terminals not increased by more than 30 K		N
20	Clearances, creepage distances and distances through insulation		N
	Applicable for creepage distances and clearances for live parts of different potential only, as stated in table 18 for operational insulation, and across full disconnection and micro-disconnection		N
ZF	**ANNEX ZF, informative**		P
	IEC and CENELEC code designations for flexible cords		P

10.	**TABLE: Input deviation measurements**				P
Input deviation dP of/at:	P rated (W)	P (W)	dP (W)	Required dP (W)	Remark
230V 50Hz	250	203	- 47	+ 50	

11.7	**TABLE: Heating temperature specifications**		P
Test step:	Temperature	Duration	--
Working cycle: 56s, pause-time 1s, working-time 56s, rest-time 36 min 43s	40	17320 s	

Clause	Requirement - Test	Result - Remark	Verdict

11.8	**TABLE: Temperature rise measurements**		P
	Room temperature t1 (°C) ..... :	37	P
	Room temperature t2 (°C) ..... :	40	P
	Test voltage (V)..... :	244	P
Probe nr.	Temperature rise dT of part/at:	dT (K)	Required dT (K)
103	Supply cord sheath	33.8	60
104	Stand of motor	36.4	45
106 ...111	External enclosure	35	45

	Winding temperature rise measurements				P
Temperature rise dT of winding:	R_1 (Ω)	R_2 (Ω)	dT (K)	Required dT (K)	Insulation class
Motor (black-blue)	53.13	68.3	74.52	100	F
Motor (brown-blue)	52.89	67.2	70.46	100	F

13.2	**TABLE: Leakage current measurements at operating temperature**		P
	Heating appliances: at 1,15 times maximum rated input (W)..... :		N
	Motor-operated and combined appliances: at 1,06 times rated voltage (V)..... :	244	P
Leakage current I between:		I (mA)	Required I (mA)
Live parts and accessible metal parts		0.24	3.5

13.3	**TABLE: Electric strength measurements at operating temperature**		P
Test voltage applied between:		Test voltage (V)	Breakdown
Live parts and accessible metal parts		1000	No

16.2	**TABLE: Leakage current measurements**		P
	at 1,06 times rated voltage (V) ..... :	244	P
Leakage current I between:		I (mA)	Required I (mA)
Live parts and accessible metal parts		0.3	3.5

16.3	**TABLE: Electric strength measurements**		P
Test voltage applied between:		Test voltage (V)	Breakdown
Live parts and accessible metal parts		1250	No
Accessible parts and the supply cord wrapped with metal foil		2500	No

17.1	**TABLE: Overload protection, temperature rise measurements**		N
	at 1,06-0,94 times rated voltage (V)..... :		
Temperature rise dT of part/at:		dT (K)	Required dT (K)

19.11	**TABLE: Abnormal operation, temperature and temperature rise measurements**									P
Probe Nr.	Part measured	Max. limit temp. rise deg C (K)	Measured max. limit temperature rise deg C (K)							
			19.7	19.9						
	Wall-ceiling and floor of test corner	150	---	---						
	Supply cable of cord insulation	150	---	---						
Thermoplastic material parts used as:			---	---						
	- supplementary insulation		---	---						
	- reinforced insulation		---	---						
Windings:		Class F	---	---						
Motor (black-blue)		240	136.5	**						
Motor (brown-blue)		240	105	**						
** The self-resetting thermal cut-out is operated (160°C)										

19.13	**TABLE: Electric strength measurements**		P
Test voltage applied between:		Test voltage (V)	Breakdown
Live parts and accessible metal parts		1000	No

Clause	Requirement - Test	Result - Remark	Verdict

29.1	TABLE: Creepage distance and clearance through insulation measurements								P
Creepage (cr) and clearance (cl) distance (mm):		Class III appliances		Other appliances, V working:					Remark
				≤ 130 V		130-250 V		>250-480 V	
		cr	cl	cr	cl	cr	cl	cr	cl	
between live parts of different polarity:										
- if protected against deposition of dirt		1,0	1,0	1,0	1,0	**2,0**	**2,0**	2,0	2,0	P
- if not protected against deposition of dirt		2,0	1,5	2,0	1,5	3,0	2,5	4,0	3,0	
- if lacquered or enamelled windings		1,0	1,0	1,5	1,5	**2,0**	**2,0**	3,0	3,0	P
- for positive temperature coefficient (PTC) resistors including their connecting wires, if protected against deposition of moisture or dirt		---	---	1,0	1,0	1,0	1,0	---	---	---
between live parts and other metal parts over basic insulation:										
- if protected against deposition of dirt:										
. if of ceramic, pure mica and similar materials		1,0	1,0	1,0	1,0	2,5	2,5	---	---	---
. if of other material		1,5	1,0	1,5	1,0	**3,0**	**2,5**	---	---	P
- if not protected against deposition of dirt		2,0	1,5	2,0	1,5	4,0	3,0	---	---	---
- if the live parts are lacquered or enamelled windings		1,0	1,0	1,5	1,5	**2,0**	**2,0**	---	---	P
- at the end of tubular sheathed heating elements		---	---	1,0	1,0	1,0	1,0	---	---	---
between live parts and other metal parts over reinforced insulation:										
- if the live parts are lacquered or enamelled windings		---	---	6,0	6,0	6,0	6,0	---	---	---
- for other live parts		---	---	8,0	8,0	8,0	8,0	---	---	---
between metal parts separated by supplementary insulation		---	---	4,0	4,0	4,0	4,0	---	---	---
between live parts in recesses in the mounting face of the appliance and the surface to which it is fixed		2,0	2,0	6,0	6,0	6,0	6,0	---	---	---

Clause	Requirement - Test	Result - Remark	Verdict

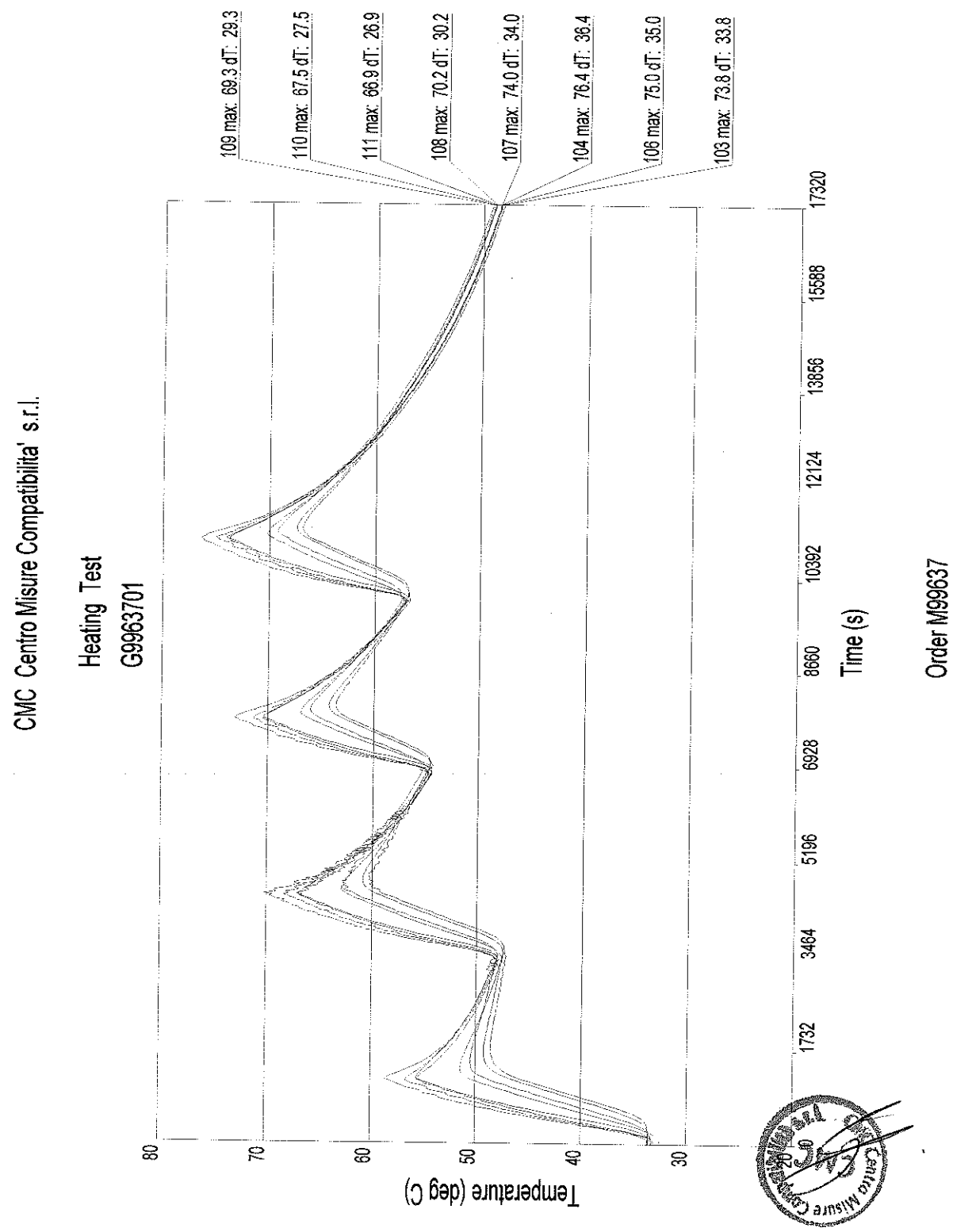
30. 1	TABLE: Ball-pressure test		N
Part		Test temperature (°C)	Impression diameter (mm)

30. 2	TABLE: Glow - wire test		P
Part:	Test temperature (°C)	Observed	Remark
Red sealing compound	550	P	

30. 3 ⊗	TABLE: Proof tracking test		NE
Part	Test voltage (V)	Observed	Remark

⊗ Not accredited by SINAL

9. Graph


CMC Centro Misure Compatibilita' s.r.l.
Heating Test
G9963701
109 max: 69.3 dT: 29.3
110 max: 67.5 dT: 27.5
111 max: 66.9 dT: 26.9
108 max: 70.2 dT: 30.2
107 max: 74.0 dT: 34.0
104 max: 76.4 dT: 36.4
106 max: 75.0 dT: 35.0
103 max: 73.8 dT: 33.8
Temperature (deg C)
80
70
60
50
40
30
20
Time (s)
1732
3464
5196
6928
8660
10392
12124
13856
15588
17320
Order M99637