

Specification for

Safety of household electrical appliances —

Part 1: General requirements

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The Government departments and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this standard:

British Electrical Approvals Board for	Fire Protection Association
Domestic Appliances	Home Office
British Fractional Horsepower Electric Motor	Institution of Electrical and Electronics
Manufacturers Association	Technician Engineers
Consumer Council	Royal Institute of British Architects
Electrical Association for Women	Women's Advisory Committee BSI

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Contents

	Page
Co-operating organizations	Inside front cover
Foreword	iii
1 Scope	1
2 Definitions	1
3 General requirement	5
4 General conditions for the tests	5
5 Rating	7
6 Classification	7
7 Marking	8
8 Protection against electric shock	12
9 Starting of motor-operated appliances	14
10 Input	15
11 Heating	16
12 Operation under overload conditions	20
13 Electrical insulation at operating temperature	21
14 Radio-interference suppression	23
15 Moisture resistance	23
16 Insulation resistance and electric strength	24
17 Overload protection	26
18 Endurance	27
19 Abnormal operation	28
20 Stability and mechanical hazards	30
21 Mechanical strength	31
22 Construction	31
23 Internal wiring	36
24 Components	37
25 Supply connection and external flexible cables and cords	39
26 Terminals for external conductors	43
27 Provision for earthing	47
28 Screws and connections	48
29 Creepage distances, clearances and distances through insulation	49
30 Resistance to heat, fire and tracking	52
31 Resistance to rusting	53
Appendix A Deviations from Part I of CEE Publications 10 and 11	54
Appendix B Spray apparatus	55
Appendix C Spring-operated impact-test apparatus	55
Appendix D List of British Standards for component parts	55
Appendix E Requirements for snap-on connector assemblies	56
Figure 1 — Short test pin	58
Figure 2 — Test probe	58
Figure 3 — Diagram for leakage current measurement	59
Figure 4 — Diagram for electric strength test at operating temperature	60
Figure 5 — Splash apparatus	60
Figure 6 — Device for testing shoulders in conduit entries	61
Figure 7 — Ball-pressure apparatus	61
Figure 8 — Apparatus for hot-mandrel test	62

	Page
Figure 9 — Arrangement and dimensions of the electrodes for the tracking test	63
Figure 10 — Spray apparatus	64
Figure 11 — Impact-test apparatus	65
Figure 12 — Standard tab terminal for use with solderless snap-on connectors	66
Table 1 — Diameter of silver wire	15
Table 2 — Permissible variations in rated inputs	15
Table 3 — Permissible temperature rises	17
Table 4 — Insulation resistance	25
Table 5 — Test voltages	26
Table 6 — Test operating time	27
Table 7 — Permissible temperature rises	30
Table 8 — Test force for screwed glands	31
Table 9A — Current carrying capacities of flexible cables and cords, metric sizes	39
Table 9B — Current carrying capacities of flexible cords, inch sizes	40
Table 10A — Current carrying capacities of cables for fixed wiring, metric sizes	40
Table 10B — Current carrying capacities of cables for fixed wiring, inch sizes	40
Table 11 — Test figures for pull and torque	41
Table 12 — Conduit entry sizes	43
Table 13 — Conductor cross-sectional areas for which terminals shall be suitable	44
Table 14 — Dimensions of pillar type terminals	44
Table 15 — Dimensions of screw type terminals	45
Table 16 — Dimensions of stud type terminals	46
Table 17 — Axial pull on conductors	46
Table 18 — Torque values for screwed connections	48
Table 19 — Creepage distances, clearances and distances through insulation	50
Table 20 — Clearances and creepage distances	51

Foreword

In order to keep abreast of progress in the industries concerned, British Standards are subject to periodical review. Suggestions for improvements will be recorded and in due course brought to the notice of the committees charged with the revision of the standards to which they refer.

A complete list of British Standards, numbering over 9,000, fully indexed and with a note of the contents of each, will be found in the BSI Catalogue which may be purchased from BSI Sales Department. The Catalogue may be consulted in many public libraries and similar institutions.

This standard makes reference to the following British Standards (see also Appendix D):

BS 546, *Two-pole and earthing-pin plugs, socket-outlets and socket-outlet adaptors for circuits up to 250 volts.*

BS 562, *Reversible connectors for portable electrical appliances.*

BS 613, *Components and filter units for radio interference suppression.*

BS 727, *Radio-interference measuring apparatus for the frequency range 0.015 MHz to 1 000 MHz.*

BS 800, *Radio interference limits and measurements for equipment embodying small motors and control devices.*

BS 1363, *13 A plugs, switched and unswitched socket-outlets and boxes.*

BS 1650, *Capacitors for connection to power-frequency systems.*

BS 2757, *Classification of insulating materials for electrical machinery and apparatus on the basis of thermal stability in service.*

BS 3042, *Standard test fingers and probes for checking protection against electrical, mechanical and thermal hazard.*

BS 3283, *Non-reversible connectors and appliance inlets for portable electrical appliances (for circuits up to 250 volts).*

BS 3535, *Safety isolating transformers for industrial and domestic purposes.*

BS 3643, *ISO metric screw threads.*

BS 4491, *Appliance couplers for household and similar general purposes.*

BS 4573, *Two-pin reversible plugs and shaver socket-outlets.*

BS 5267, *Capacitors for single-phase a.c. motors.*

BS 6004, *PVC-insulated cables (non-armoured) for electric power and lighting.*

BS 6007, *Rubber-insulated cables for electric power and lighting.*

BS 6500, *Insulated flexible cords.*

This revision of BS 3456 has been prepared with the authority of the Electrical Industry Standards Committee and is one of a series of publications for the testing and approval of household electrical appliances.

This British Standard is used by the British Electrical Approvals Board for Domestic Appliances (BEAB) for testing and approval purposes. Manufacturers or responsible vendors can only claim that their appliances have been approved by the BEAB by marking them in a permanent manner with the certification mark of the BEAB and this mark may be used only by manufacturers or responsible vendors who have obtained a licence from the BEAB.

When first published in 1962 the standard was in two parts:

Part A: Heating and cooking appliances;
and Part B: Motor-operated appliances.

Each part had a section dealing with general requirements, Sections A1 and B1 respectively, and a number of sections each dealing with a particular type of appliance.

This arrangement was followed in the revised edition published in 1966, but in this present edition the opportunity has been taken to combine Parts A1 and B1 into a single Part 1, “General requirements” and the sections dealing with particular appliances will in future be termed sections of Part 2, “Particular requirements”. These latter sections will be renumbered and the use of the prefixes A and B to denote heating and cooking appliances and motor-operated appliances respectively, will be discontinued.

It is intended that Part C of BS 3456 dealing with household refrigerators will eventually be withdrawn and replaced by a section of Part 2.

The present revision brings the standard into line with the corresponding publications of the International Commission on Rules for the Approval of Electrical Equipment (CEE) and it is therefore similar in technical content to Parts I of CEE Publications 10 and 11 (Second Editions) except for a small number of deviations and differences. The deviations are collated in Appendix A whereas the differences are merely indicated in the text of the specification.

When comparing the requirements in this British Standard with those in the corresponding CEE publications “differences” are requirements less onerous than those given in the CEE publications whereas “deviations” are more onerous than the requirements of the CEE publications.

This British Standard incorporates the most up-to-date requirements for safety, durability and reliability in service, but it will be kept under constant review and revised in the light of experience. If the above-mentioned CEE publications are revised due consideration will also be given to the incorporation of such revisions in this specification.

When a section of Part 2 of this edition is issued covering an appliance which is the subject of one of the particular appliance sections in the 1966 edition of BS 3456, that earlier section will be withdrawn two years after the date of publication of the new section.

The 1966 edition of Sections A1 and B1 will be withdrawn coincidentally with the withdrawal of the last of the earlier particular appliance sections.

Until such time as a Part 2 to this present edition is issued, the 1966 edition of Sections A1 or B1 with the appropriate particular appliance section will apply.

During the two year period before the withdrawal of the earlier section of the particular appliance section, either edition may be used.

All appliances submitted for licensing after the date of withdrawal of the earlier edition shall comply with the relevant Part 2 section of this new edition if, they purport to comply with BS 3456.

Appliances conforming to the specification are not necessarily suitable for use in premises to which the Offices, Shops and Railway Premises Act 1963 and the Factories Act apply.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 66 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This British Standard specifies the requirements for testing electric heating appliances and electric motor-operated appliances for household and similar purposes, designed for connection to supplies at voltages not exceeding 250 V a.c. single phase or d.c.

The standard is in two parts:

Part 1, "General requirements", comprises clauses of a general character.

Part 2, "Particular requirements", comprises Sections 1, 2, 3, etc., each of which deals with a particular type of appliance. The clauses of these sections supplement or modify the corresponding clauses in Part 1. An appliance of a particular type can only be considered as conforming to BS 3456 when all the requirements of Part 1 and of the section of Part 2 are met.

The standard is intended primarily to establish a satisfactory level of safety when the appliance is used under normal conditions and it is based on an ambient temperature not normally exceeding 25 °C. It also contains some requirements with regard to radio and television suppression under normal conditions as they affect safety.

This standard does not take into account the special hazards which exist in nurseries and other places where there are young children or aged or infirm persons without supervision; in such cases additional requirements may be necessary.

The standard does not apply to:

- appliances designed for industrial purposes,
- appliances intended to be used in vehicles or in ships or aircraft,
- appliances intended to be used in tropical countries,
- appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas),
- portable tools,
- separate motors,
- appliances for induction heating or dielectric heating,
- medical-treatment appliances.

2 Definitions

For the purposes of this British Standard the following definitions apply. The terms "voltage" and "current" imply the r.m.s. values unless otherwise stated.

Cooking and heating appliances are referred to throughout as heating appliances and motor-operated and magnetically-driven appliances are referred to as motor-operated appliances. When an appliance incorporates both a heating element and a motor it is referred to as a combined appliance.

2.1

rated voltage

the voltage assigned to the appliance by the maker

2.2

rated voltage range

the voltage range assigned to the appliance by the maker, expressed by its lower and upper limits

2.3

rated input

the input under normal load and at normal operating temperature, assigned to the appliance by the maker

2.4**maximum rated input¹⁾**

the maximum rated input of a heating appliance when an input range is marked on the appliance, is the highest input of the range. When the mean input is marked, the maximum rated input is given by the formula:

$$\text{Mean rated input} \times \left(\frac{\text{maximum rated voltage}}{\text{mean rated voltage}} \right)^2$$

where the mean rated voltage is the arithmetic mean of the lower and upper limits of the rated voltage range

2.5**minimum rated input¹⁾**

the minimum rated input of a heating appliance when an input range is marked on the appliance, is the lowest input of the range. When the mean input is marked, the minimum rated input is given by the formula:

$$\text{Mean rated input} \times \left(\frac{\text{maximum rated voltage}}{\text{mean rated voltage}} \right)^2$$

2.6**rated current**

the current assigned to the appliance by the maker

NOTE If no current is assigned to the appliance, the rated current for the purposes of this standard is determined for heating appliances by calculation from the rated input and rated voltage, and for motor-operated appliances by measuring the current, when the appliance is operating under normal load at rated voltage.

2.7**rated frequency**

the frequency assigned to the appliance by the maker

2.8**rated frequency range**

the frequency range assigned to the appliance by the maker, expressed by its lower and upper limits

2.9**rated capacity of an appliance for heating liquids**

the quantity of liquid for which the appliance is designed

2.10**functional insulation**

the insulation necessary for the proper functioning of the appliance and for basic protection against electric shock

2.11**supplementary insulation (protective insulation)**

an independent insulation provided in addition to the functional insulation, in order to ensure protection against electric shock in the event of a failure of the functional insulation

2.12**double insulation**

insulation comprising both functional insulation and supplementary insulation

2.13**reinforced insulation**

an improved functional insulation with such mechanical and electrical qualities that it provides the same degree of protection against electric shock as double insulation

¹⁾ Does not appear in CEE Publications 10 and 11

2.14**class I appliance**

an appliance having at least functional insulation throughout and provided with an earthing terminal or earthing contact, and, for appliances designed for connection by means of a flexible cable or cord, provided with either an appliance inlet with earthing contact, or a non-detachable flexible cable or cord with earthing conductor²⁾

NOTE Class I appliances may have parts with double insulation, or parts operating at extra-low voltage.

2.15**class II appliance**

an appliance with double insulation and/or reinforced insulation throughout and without provision for earthing. Such an appliance may be of one of the following types:

- 1) an appliance having a durable and substantially continuous enclosure of insulating material which envelops all metal parts, with the exception of small parts, such as nameplates, screws and rivets, which are isolated from live parts by insulation at least equivalent to reinforced insulation; such an appliance is called an insulation-encased Class II appliance (formerly known as Class IIA).
- 2) an appliance having a substantially continuous metal enclosure, in which double insulation is used throughout, except for those parts where reinforced insulation is used, because the application of double insulation is manifestly impracticable; such an appliance is called a metal-encased Class II appliance (formerly known as Class IIB).
- 3) an appliance which is a combination of types 1) and 2).

NOTE 1 The enclosure of an insulation-encased Class II appliance may form a part or the whole of the supplementary insulation or of the reinforced insulation.

NOTE 2 If an appliance with double insulation and/or reinforced insulation throughout has an earthing terminal or earthing contact, it is deemed to be of Class I construction.

NOTE 3 Class II appliances may have parts operating at extra-low voltage.

2.16**class III appliance**

an appliance designed for operation at extra-low voltage, and which has no circuits, either internal or external, which operate at a voltage other than extra-low voltage

NOTE 1 Appliances intended to be operated at extra-low voltage and having internal circuits which operate at a voltage other than extra-low voltage, are not included in the classification.

A more comprehensive definition is under consideration.

NOTE 2 If an appliance has parts in more than one of the above classifications, namely, Classes I, II and III, the overall classification is that with the lower number.

NOTE 3 Requirements for Class III appliances are formulated on the assumption that the supply to the appliance will be isolated from the electricity supply mains.

2.17**extra-low voltage²⁾**

voltage normally not exceeding 50 V a.c., with a maximum r.m.s. voltage to earth of 30 V, or 50 V d.c.

2.18**hand-held appliance**

an appliance intended to be held in the hand during normal use

2.19**portable appliance**

an appliance which can easily be moved from one place to another while connected to the supply

2.20**transportable appliance³⁾**

an appliance not intended to be portable but which can readily be moved from one place to another

²⁾ Differs from CEE Publications 10 and 11

³⁾ Does not appear in CEE Publications 10 and 11

2.21

stationary appliance

an appliance intended to be fixed to its supporting surface or which cannot easily be moved from one place to another

2.22

appliance for building-in

an appliance intended to be installed in a cup-board fitment or sink unit, in a prepared recess in a wall, or in a similar situation

2.23

normal load

the load to be applied to a motor-operated appliance so that the stress imposed corresponds to that occurring under normal conditions of use, any marking of short-time or intermittent operation being observed and, unless otherwise specified, heating elements, if any, being operated as in normal use

2.24

conditions of adequate heat discharge

the conditions that apply when a heating appliance is operated under normal conditions of use

2.25

rated operating time

the operating time assigned to the appliance by the maker

2.26

continuous operation

operation under normal load for an unlimited period, without the specified limits of temperature rise being exceeded

2.27

short-time operation

operation under normal load for a specified period, starting from cold, without the specified limits of temperature rise being exceeded, the intervals between each period of operation being sufficient to allow the appliance to cool down to room temperature

2.28

intermittent operation

operation in a series of specified identical cycles, each cycle being composed of a period of operation under normal load, without the specified limits of temperature rise being exceeded, followed by a rest period with the appliance running idle or switched off

2.29

non-detachable flexible cable or cord

a flexible cable or cord which can only be removed from the appliance with the aid of a tool

2.30

non-detachable heating element (or part)

a heating element (or part) which can only be removed with the aid of a tool

2.31

detachable heating element (or part)

a heating element (or part) which can be removed without the aid of a tool

2.32

thermostat

a device which is sensitive to temperature and serves to keep the temperature of an appliance, or of parts of it, between certain limits during normal operation by automatically opening and closing the circuit or by varying the current

2.33**temperature limiter⁴⁾**

a temperature sensing device the operating temperature of which may be either fixed or adjustable and which in normal use operates by opening or closing a circuit when the temperature of an appliance or parts of it reach a predetermined value. It does not make the reverse operation during the normal duty cycle of the appliance

2.34**thermal cut-out**

a device which, during abnormal operation, limits the temperature of an appliance, or of parts of it, by automatically opening the circuit or by reducing the current, and which is so constructed that its setting cannot be altered by the user

2.35**self-resetting thermal cut-out**

a thermal cut-out which automatically restores the current after the relevant part of the appliance has cooled down sufficiently

2.36**non-self-resetting thermal cut-out**

a thermal cut-out which requires resetting by hand, or replacement of a part, in order to restore the current

2.37**tool**

a screwdriver, a coin or any other object which may be used to operate a screw or similar fixing means

3 General requirement

3.1 Appliances shall be so designed and constructed that in normal use they function reliably and cause no danger to persons or surroundings, even in the event of such careless use as may occur in normal service.

3.1.1 TEST. Compliance shall be checked, in general, by carrying out all the relevant tests specified.

3.2 ⁴⁾Notwithstanding the requirements specified in this standard, designs or constructions to which the tests specified do not fully apply but which give an equivalent degree of safety and durability, may be regarded as complying with this standard, subject to the findings of a special investigation by the approving authority and pending the issue of an amendment or extension to this standard.

4 General conditions for the tests

4.1 Tests according to this standard shall be type tests.

4.2 Unless otherwise specified in this Part 1 or in the section of Part 2, "Particular requirements" covering the appliance concerned, the tests shall be made on a single sample as delivered, which shall withstand all the relevant tests.

NOTE 1 If the appliance is designed for different supply voltages, for both a.c. and d.c., for different speeds, etc., more than one sample may be needed for test purposes.

NOTE 2 If the tests described in 11.2 have to be made, three additional samples are needed for test purposes.

NOTE 3 If it is necessary to dismantle a Class II appliance for any of the tests described in Clauses 11 to 19, one additional sample is needed for test purposes. The testing of components may necessitate the submission of additional samples of these components. When the submission of such samples is necessary, they should be submitted together with the appliance.

NOTE 4 If a heating element ruptures during the tests described in Clause 19 an additional sample is required.

4.3 Unless otherwise specified in the section of Part 2, "Particular requirements" covering the appliance concerned, the tests shall be carried out in the order of the clauses of this Part 1, "General requirements". Before testing is started it shall be verified that the appliance is in working order by applying the tests described in 16.1.4 and 27.5.1, if applicable, together with an operational run as additional tests before the main sequence is started.

4.4 The tests shall be carried out with the appliance, or any movable part of it, placed in the most unfavourable position which may occur in normal use, as determined by the testing authority.

⁴⁾ Does not appear in CEE Publications 10 and 11

4.5 If the test results are influenced by the temperature of the ambient air, the room temperature shall be maintained at 20 ± 5 °C. If, however, the temperature attained by any part is limited by a temperature sensitive device, or is influenced by the temperature at which a change of state occurs, for example the temperature of boiling water, the room temperature shall be maintained at 23 ± 2 °C, if the temperatures measured are within 10 degC of the limits specified.

4.6 Appliances for a.c. only shall be tested with a.c., at rated frequency, if marked, those for d.c. only shall be tested with d.c.

Appliances designed for more than one rated voltage, or for both a.c. and d.c., shall be tested at the most unfavourable voltage and nature of supply, as determined by the testing authority.

Unless otherwise specified in this Part 1 or in the section of Part 2, "Particular requirements" covering the appliance concerned, appliances designed for one or more rated voltage ranges shall be tested at the most unfavourable voltage, as determined by the testing authority, within the relevant ranges multiplied by the appropriate factor.

When testing appliances designed for d.c. only, the possible influence of polarity on the operation of the appliance shall be taken into consideration by the testing authority.

When it is specified that the supply voltage is equal to the rated voltage multiplied by a factor, the supply voltage for appliances marked with a rated voltage range shall be equal to:

- the upper limit of the rated voltage range multiplied by this factor, if greater than 1,
- the lower limit of the rated voltage range multiplied by this factor, if smaller than 1.

Appliances not marked with rated frequency shall be tested at 50 Hz⁵⁾.

Appliances marked with a rated frequency range shall be tested at 50 Hz provided that frequency is within the range⁵⁾, otherwise they shall be tested at the most unfavourable frequency within the range, as determined by the testing authority.

NOTE 1 For appliances designed for one rated voltage range, the upper limit of the range is, usually, the most unfavourable voltage within the range.

NOTE 2 If the appliance is designed for more than one rated voltage or rated voltage range, it may be necessary to make some of the tests more than once, in order to establish the most unfavourable voltage.

4.7 Appliances for which alternative accessories or heating elements are available, shall be tested with those accessories or elements which give the most unfavourable results, as determined by the testing authority, provided that the accessories or the elements used are within the appliance manufacturer's specification.

4.8 If, in a combined appliance, in normal use, the heating element cannot be operated unless the motor is running, the element shall be tested with the motor running. If the heating element can be operated without the motor running, the element shall be tested with or without the motor running, whichever is the more unfavourable, as determined by the testing authority. The motor and heater shall be fed from separate supplies, so enabling the prescribed voltage to be applied to each.

4.9 Appliances provided with a thermostat, a regulating device or a similar control, shall be tested with these controls adjusted to their most unfavourable setting as determined by the testing authority if the setting can be altered by the user.

NOTE 1 If the adjusting means of the control is accessible without the aid of a tool, this subclause applies whether the setting can be altered by hand-or with the aid of a tool.

NOTE 2 If the adjusting means is not accessible without the aid of a tool this subclause applies only if the setting can be altered by hand.

NOTE 3 Adequate sealing is regarded as preventing alteration of the setting by the user.

4.10 Where appropriate, appliances for building-in shall be installed for test purposes in accordance with the manufacturer's instructions for installation, so far as these are considered reasonable by the approving authority⁶⁾.

4.11 Appliances intended to be used with a non-detachable flexible cable or cord shall be tested with the flexible cable or cord connected to the appliance.

⁵⁾ Differs from CEE Publication 10

⁶⁾ Differs from CEE Publications 10 and 11

4.12 For motor-operated appliances, when the conditions of normal load are specified in Part 2, “Particular requirements”, the appliance shall be loaded according to these conditions, irrespective of any marking of short-time or intermittent operation, unless it is evident from the design of the appliance that these conditions will not occur in normal use.

⁷⁾**For heating appliances**, when it is specified that the appliance shall be connected to a test voltage so that the input is greater than the rated input, the test voltage as defined in the relevant clauses applies only to heating elements without appreciable positive temperature coefficient of resistance. For other heating elements the test voltage shall be determined in the following manner:

The rated voltage is applied until the heating element reaches its operating temperature. The voltage is then rapidly increased to the value necessary to give the required test input, and the tests shall be made as specified, this value of the voltage being maintained throughout.

The temperature coefficient is deemed to be appreciable if, at rated voltage, the input of the appliance in cold condition differs by more than 15 %⁸⁾ from the input at operating temperature.

NOTE Marking of the input in cold condition is only required if the difference exceeds 25 %.

4.13 An appliance intended to be operated at extra-low voltage shall be tested together with its supply transformer if this is normally sold with the appliance.

4.14 For the purpose of the tests described in Clauses 8, 16, 25⁸⁾ and 27, parts separated from live parts by double insulation or reinforced insulation shall not be regarded as likely to become live in the event of an insulation fault; connection of accessible metal parts to an earthing terminal or earthing contact does not remove the necessity to carry out these tests.

For the purpose of the label specified in 7.16 the word “Live” refers only to the line. Throughout the remainder of the standard the word “live” refers to both line and neutral terminals and parts connected thereto⁹⁾.

4.15 If Class I appliances have parts with double insulation or reinforced insulation, such parts shall be checked for compliance with the appropriate requirements specified for Class II appliances.

Similarly, if Class I or Class II appliances have parts operating at extra-low voltage, such parts shall be checked for compliance with the appropriate requirements specified for Class III appliances.

5 Rating

5.1 The maximum rated voltage is 250 V¹⁰⁾.

5.1.1 TEST. Compliance shall be checked by inspection of the marking.

6 Classification

6.1 Appliances shall be classified:

- 1) according to protection against electric shock¹⁰⁾:
 - Class I appliances,
 - Class II appliances,
 - Class III appliances;
- 2) according to degree of protection against moisture:
 - ordinary appliances,
 - drip-proof appliances,
 - splash-proof appliances,
 - watertight appliances.

⁷⁾ Differs from CEE Publication 11

⁸⁾ Differs from CEE Publications 10 and 11

⁹⁾ Does not appear in CEE Publications 10 and 11

¹⁰⁾ Deviation. See Appendix A

7 Marking

7.1 Appliances shall be marked with¹¹⁾:

1) the number of this British Standard, i.e. BS 3456;

NOTE The certification mark of the British Electrical Approvals Board for Domestic Appliances which incorporates the number of this BS may be used only by manufacturers under licence from that board. Particulars of the conditions under which licences are granted may be obtained from the Director, the British Electrical Approvals Board for Domestic Appliances, Mark House, 153 London Road, Kingston-upon-Thames, Surrey.

2) rated voltage(s) or rated voltage range(s) in volts (may be omitted for appliances with detachable heating elements only);

3) symbol for nature of supply (if applicable);

4) rated frequency or rated frequency range in hertz or cycles per second, unless the appliance is designed for d.c., or for a.c. of any frequency up to and including 50 Hz;

5) rated input in watts or kilowatts (if greater than 25 W), or, for appliances with detachable heating elements only, maximum total rated input of heating elements that may be fitted;

6) rated current of the appropriate fuse in amperes (if applicable, see 9.2);

7) rated capacity in litres (if applicable);

8) maker's name or trademark, or name of responsible vendor;

9) maker's model or type reference;

10) rated operating time, or rated operating time and rated resting time, in hours, minutes or seconds, if applicable;

11) symbol for Class II construction (additionally the words "double-insulated" or "all-insulated" may be used, as appropriate) (for Class II appliances only);

12) symbol for degree of protection against moisture, if applicable.

NOTE 1 If an appliance has alternative circuits which can be selected by a control device, the rated input is that corresponding to the highest loading possible.

NOTE 2 Additional markings may be used, provided they do not give rise to misunderstanding.

7.1.1 TEST. Compliance shall be checked by inspection.

7.2 If the motor of an appliance is marked separately, the marking of the appliance and that of the motor shall be such that the testing authority is in no doubt with regard to the rating and maker of the appliance itself.

7.2.1 TEST. Compliance shall be checked by inspection.

7.3 Combined appliances with heating elements and motors incorporated shall have the appropriate markings as given in 7.1 for both the heating elements and the motors.

7.3.1 TEST. Compliance shall be checked by inspection.

7.4 Appliances for short-time operation or intermittent operation shall be marked with rated operating time or rated operating time and rated resting time respectively, unless the operating time is either limited by the construction or corresponds to the description of normal load given in Part 2, "Particular requirements"

The marking of short-time operation or intermittent operation shall correspond to normal use.

The marking of intermittent operation shall be such that the rated operating time precedes the rated resting time, both markings being separated by an oblique stroke.

7.4.1 TEST. Compliance shall be checked by inspection.

7.5 Detachable heating elements shall be marked with:

1) rated voltage(s) or rated voltage range(s) in volts;

2) rated input in watts or kilowatts, if greater than 25 W;

3) maker's name or trade mark;

4) maker's model or type reference;

5) symbol for degree of protection against moisture, if applicable.

¹¹⁾ Deviation. See Appendix A.

Non-detachable heating elements shall be similarly marked so far as space permits.

7.5.1 TEST. Compliance shall be checked by inspection.

7.6 If the appliance can be adjusted to suit different rated voltages or different rated inputs, the voltage or input to which the appliance is adjusted shall be easily and clearly discernible.

7.6.1 TEST. Compliance shall be checked by inspection.

NOTE For appliances where frequent changes in voltage setting are not required, this requirement is deemed to be met if the rated voltage or the rated input to which the appliance is adjusted can be determined from a wiring diagram fixed to the appliance; the wiring diagram may be on the inside of a cover which has to be removed to connect the supply conductors. This diagram may be on a card which is riveted to the cover, or on a paper or similar label secured to the cover by an adhesive, but not on a label loosely attached to the appliance.

7.7 For appliances or detachable heating elements marked with more than one rated voltage or rated voltage range, the rated input for each of these voltages or ranges shall be marked, if greater than 25 W.

For appliances or detachable heating elements marked with a voltage range the upper and lower limits of the rated input shall be marked on the appliance or detachable heating element so that the relation between input and voltage appears distinctly, unless the difference between the limits of a rated voltage range does not exceed 10 % of the mean value of the range, in which case the marking for rated input may be related to the mean value of this range.

If the input of the appliance or detachable heating element in cold condition differs by more than 25 % from the input at operating temperature, the input in cold condition shall be marked in addition, and shall be placed in brackets after the marking of the input at operating temperature.

7.7.1 TEST. Compliance shall be checked by inspection.

7.8 When symbols are used, they shall be as follows:

volts:	V
amperes:	A
hertz or cycles per second:	Hz or c/s
watts:	W
kilowatts:	kW
microfarads:	μF
litres:	l
kilogrammes:	kg
kilonewtons per square metre:	$\text{kN/m}^{2\text{a}}$
hours:	h
minutes:	min
seconds:	s
alternating current:	~
direct current:	— — — — —
Class II construction:	
drip-proof construction:	💧 (one drop)
splash-proof construction:	⚠️ (one drop in a triangle)
watertight construction:	💧💧 (two drops)

^a Differs from CEE Publications 10 and 11

The symbol for nature of supply shall be placed next to the marking for rated voltage.

The dimensions of the symbol for Class II construction shall be such that the length of the sides of the outer square is about twice the length of the sides of the inner square. The length of the sides of the outer square shall not be less than 5 mm, unless the largest dimension of the appliance does not exceed 150 mm, in which case the dimensions of the symbol may be reduced proportionately, but the length of the sides of the outer square shall not be less than 3 mm.

The symbol for Class II construction shall be so placed that it will be obvious that it is a part of the technical information and is unlikely to be confused with the maker's name or trade mark.

7.8.1 TEST. Compliance shall be checked by inspection.

7.9 ¹²⁾In a Class I appliance, the line terminal shall be indicated by the letter L and the neutral terminal by the letter N. This requirement also applies to a Class II appliance intended for permanent connection to the supply which is fitted with single-pole switches or other single-pole control devices or Edison screw lampholders.

Earthing terminals shall be indicated by the symbol $\perp$

These indications shall not be placed on screws, removable washers or other parts which might be removed when conductors are being connected.

7.9.1 TEST. Compliance shall be checked by inspection.

7.10 Unless the function of a switch is considered obvious by the testing authority, the switch shall be marked or placed so as to indicate clearly which component it controls.

7.10.1 TEST. Compliance shall be checked by inspection.

NOTE Symbols may be used for this purpose provided they are considered comprehensible by the testing authority.

7.11 The different positions of regulating devices, and the different positions of switches on stationary appliances, shall be indicated by figures, letters or other visual means.

If figures are used for indicating the different positions, the OFF position shall be indicated by the Figure 0 or the word OFF¹³⁾ and the position for a greater output, input, speed, cooling effect, etc., shall be indicated by a higher figure.

The Figure 0 shall not be used for any other indication.

The position of the moving contacts of a switch shall correspond to the indications for the different positions of its operating means.

7.11.1 TEST. Compliance shall be checked by inspection.

NOTE The indications for the different positions of the operating means of a control device need not be placed on the device itself.

7.12 Thermostats, regulating devices and the like, intended to be adjusted during installation or in normal use, shall be provided with an indication for the direction of adjustment to increase or to decrease the value of the characteristic being adjusted.

7.12.1 TEST. Compliance shall be checked by inspection.

NOTE An indication of + and – is deemed to be sufficient.

7.13 If it is necessary to take special precautions when installing the appliance, details of these shall be given in an instruction sheet provided with the appliance.

7.13.1 TEST. Compliance shall be checked by inspection.

NOTE Special precautions may, for example, be necessary for appliances for building-in, in order to ensure that, after building-in, the conditions necessary for safe operation are achieved. The instruction sheet for appliances for building-in should include clear information with regard to the following:

- dimensions of the space to be provided for the appliance;
- dimensions and position of the means for supporting and fixing the appliance within this space;
- minimum clearances between the various parts of the appliance and the surrounding parts of the fitment;
- minimum dimensions of ventilating openings and their correct arrangement;
- connection of the appliance to the supply and the interconnection of separate components, if any.

7.14 ¹³⁾For a stationary appliance not provided with a flexible cord or a double-pole switch, the instructions supplied with the appliance shall include a note to the effect that a double-pole switch should be provided in the installation.

7.14.1 TEST. Compliance shall be checked by inspection.

7.15 ¹²⁾For all Class I appliances the following information shall be given on a label attached to the end of the flexible cable or cord, if supplied with the appliance, otherwise the label shall be attached to or near the input terminals. For Class I appliances other than those intended to be permanently connected to fixed wiring the information shall also be included in the user instructions.

WARNING — This appliance must be earthed

7.15.1 TEST. Compliance shall be checked by inspection.

7.16 ¹²⁾For all Class I appliances supplied with a flexible cable or cord having cores coloured green-and-yellow, brown and blue the user instructions and a label shall state the following:

¹²⁾ Deviation. See Appendix A.

¹³⁾ Differs from CEE Publications 10 and 11

“IMPORTANT”

The wires in this mains lead are coloured in accordance with the following code:

Green-and-yellow: Earth.
 Blue: Neutral.
 Brown: Live^a

^a See 4.14

In addition, the user instructions and label shall include the substance of the following:

“As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked with the letter E or by the earth symbol $\equiv$ or coloured green or green-and-yellow.

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.”

For Class II appliances supplied with a flexible cable or cord having cores coloured brown and blue, the user instructions and label shall be as specified for Class I appliances but omitting the warning and the reference to the earth core.

NOTE 1 For Class I appliances the label specified in 7.15 may be used for this purpose. A separate label is not required.

NOTE 2 For appliances intended for export, alternative labelling may be required.

7.16.1 TEST. Compliance shall be checked by inspection.

7.17 ¹⁴⁾If the appliance is provided with a flexible cord having conductors with a cross-sectional area less than 0.65 mm² (conductors smaller than 23/0076) a label attached to the end of the flexible cord shall state that the appliance must be protected by a 3 A fuse if a 13 A (BS 1363¹⁵⁾) plug is used or, if any other type of plug is used, by a 5 A fuse either in the plug or adaptor or at the distribution board.

NOTE The label specified in 7.15 or 7.16 may be used for this purpose. A separate label is not required.

7.17.1 TEST. Compliance shall be checked by inspection.

7.18 ¹⁴⁾For transportable appliances with a rated input exceeding 3 kW, a label shall be attached to the flexible cord stating that the appliance must be connected to an outlet having a rated current greater than 13 A.

A 13 A (BS 1363) plug is therefore not suitable.

NOTE The label specified in 7.15, 7.16, or 7.17 may be used for this purpose. A separate label is not required.

7.18.1 TEST. Compliance shall be checked by inspection.

7.19 ¹⁴⁾If an access cover is likely to be removed by the user in order to make simple adjustments and if thereby live parts are rendered accessible a permanent notice shall be fixed to the cover stating the following:

“Remove plug or disconnect from the mains before removing this cover”

7.19.1 TEST. Compliance shall be checked by inspection.

7.20 ¹⁴⁾For portable appliances having a rated input of 3 kW and a rated voltage of less than 230 V a note shall be included in the user instructions stating that the appliance must be connected to an outlet having a rated current greater than 13 A.

A 13 A (BS 1363) plug is therefore not suitable.

7.20.1 TEST. Compliance shall be checked by inspection.

7.21 Marking shall be easily legible and, except for non-detachable heating elements, durable.

Marking specified in 7.1 to 7.4 shall be on a main part of the appliance.

Marking specified in 7.5 shall be on a main part of the element.

¹⁴⁾ Deviation. See Appendix A.

¹⁵⁾ BS 1363, “13 A plugs, switched and unswitched socket-outlets and boxes”

The marking of fixed appliances shall be clearly discernible from the outside after the appliance has been fixed as in normal use, but, if necessary, after removal of a cover.

The marking of other appliances shall be clearly discernible from outside, if necessary after removal of a cover; for portable appliances, the removal of this cover shall not require the use of a tool.

For stationary appliances, the marking shall only be beneath a cover if it is near to the terminals for external conductors. Marking on heating elements shall be clearly discernible when the element is removed from the appliance.

Marking on, and indication for, switches, thermostats, thermal cut-outs and other control devices, shall be placed in the vicinity of these components; they shall not be placed on removable parts if these parts can be replaced in such a way that the marking will be misleading.

7.21.1 TEST. Compliance shall be checked by inspection and by rubbing the marking by hand for 15 seconds with a piece of cloth soaked with water and again for 15 seconds with a piece of cloth soaked with petroleum spirit.

After all the tests of this standard, the marking shall be easily legible; it shall not be easily possible to remove marking plates and they shall show no curling.

NOTE In considering the durability of the marking, the effect of normal use is taken into account by the testing authority. Thus, for example, marking by means of paint on containers that are likely to be cleaned frequently is not deemed to be durable.

7.22 Instruction sheets shall be written in English and where symbols are used they shall be those indicated in this standard.

7.22.1 TEST. Compliance shall be checked by inspection.

8 Protection against electric shock

8.1 ¹⁶⁾Appliances shall be so constructed and enclosed that there is adequate protection against accidental contact with live parts, functional insulation and, for Class II appliances, with metal parts separated from live parts by functional insulation only.

This requirement shall apply for all positions of the appliance when it is wired and operated as in normal use, even after the removal of detachable parts and those non-detachable parts which the user is instructed to remove for user maintenance, except that functional insulation may be accessible behind non-detachable parts which the user is instructed to remove for user maintenance or behind any detachable part marked with an instruction to unplug or disconnect the appliance from the mains before removal.

If a Class I appliance can be isolated from the supply by means of a plug and socket outlet or by means of a double pole switch with an obvious indication of the OFF position, the requirement shall not apply to lamps behind a cover.

¹⁶⁾The enclosure of the appliance shall have no openings giving access to live parts or functional insulation or for a Class II appliance, to functionally insulated parts, other than openings necessary for the use and working of the appliance. Where openings are necessary, sufficient protection against contact with live parts or functional insulation or functionally insulated parts shall be provided.

The insulating properties of lacquer, enamel, paper, cotton, oxide film on metal parts, beads and selling compound shall not be relied upon to give the required protection against accidental contact with live parts.

Unless otherwise specified in this Part 1 or in the section of Part 2, "Particular requirements" covering the appliance concerned, parts operating at extra low voltage exceeding 24 V shall be treated as live parts.

8.1.1 TEST. Compliance shall be checked by inspection and, except for heating elements which glow visibly and parts supporting such elements, as mentioned below, by a test with the standard test finger A of BS 3042¹⁷⁾. In addition apertures in Class II appliances and apertures in Class I appliances, other than those in metal parts connected to an earthing terminal or earthing contact, shall be tested with the short test pin shown in Figure 1.

¹⁶⁾ Deviation. See Appendix A.

¹⁷⁾ BS 3042, "Standard test fingers and probes for checking protection against electrical, mechanical and thermal hazard"

¹⁸⁾The tests shall be made after the removal of all parts which can be removed without the use of tools except that, where an appliance of Class I which can be isolated from the supply by means of a plug and socket outlet, or a double-pole switch with an obvious indication of the OFF position, has a lamp behind a cover such as a fuel effect, decorative cover or oven lamp lens removable without the use of a tool, the lamp shall not be removed. Parts which require a tool for their removal and which the user is instructed to remove for user maintenance are also removed.

The test finger and the test pin shall be applied with the least force necessary, in every possible position, except that appliances normally used on the floor and having a mass exceeding 35 kg¹⁹⁾ shall not be tilted. Appliances for wall-mounting and appliances for building-in shall be tested before mounting or building-in.

Apertures preventing the entry of the finger shall be further tested by means of the rigid test finger D of BS 3042²⁰⁾, which shall be applied with a force of 30 N; if this finger enters, the test with test finger A shall be repeated, the finger being pushed through the aperture, if necessary.

It shall not be possible to touch bare live parts or live parts protected by lacquer, enamel, paper, cotton, oxide film, beads or sealing compound only, with either test finger. In addition, it shall not be possible to touch functional insulation or, for Class II appliances, metal parts which are separated from live parts by functional insulation only, unless, when the appliance is fully assembled, such functional insulation is behind a non-detachable part which the user is instructed to remove for user maintenance or behind any detachable part marked with an instruction to unplug or disconnect the appliance from the mains before removal.

For Class II appliances, it shall not be possible to touch with the short test pin (Figure 1) bare live parts, or live parts protected by lacquer, enamel, paper, cotton, oxide film, beads and sealing compound.

For heating elements which glow visibly in normal use and for parts supporting such elements, provided that it is obvious from the outside of the appliance, without removing covers and the like, that these parts are in contact with the element, the test shall be made with the test probe shown in Figure 2, instead of the test finger. The probe shall be applied as a dimensional gauge and care shall be taken not to distort the parts being checked. An electrical contact indicator shall be used to show contact.

²¹⁾Where components are movable for the purpose of, for instance, belt tensioning, the test with the test finger shall be made with each component in the most unfavourable position within the range of the adjustment, the belt being, if necessary, removed for this purpose.

NOTE 1 Self-hardening resins are not regarded as sealing compound.

NOTE 2 It is recommended that a lamp be used for the indication of contact and that the voltage be not less than 40 V.

NOTE 3 The fact that appliances for wall-mounting and appliances for building-in are tested before mounting or building-in does not imply that such appliances are completely enclosed for the tests; the functional insulation of wiring in appliances other than those of Class II may give the required protection against electric shock, provided it is not accessible after installation of the appliance.

8.2 Metal parts of appliances for skin or hair treatment, other than those of Class III, which are in contact with skin or hair of persons or animals in normal use, shall be separated from live parts by double insulation or reinforced insulation and shall not be earthed.

8.2.1 TEST. Compliance shall be checked by inspection and by the tests specified for double insulation and reinforced insulation.

8.3 For appliances other than those of Class III, flexible shafts which are handled in normal use shall be insulated from motor shafts by suitable couplings of insulating material.

8.3.1 TEST. Compliance shall be checked by inspection and by the tests specified for supplementary insulation.

8.4 Conducting liquids shall not be in direct contact with live parts other than those operating at extra-low voltage. For Class II appliances such liquids shall not be in contact with metal parts which are separated from live parts by functional insulation only.

8.4.1 TEST. Compliance shall be checked by inspection.

8.5 Shafts of operating knobs, handles, levers and the like shall not be live.

8.5.1 TEST. Compliance shall be checked by inspection.

¹⁸⁾ Deviation. See Appendix A.

¹⁹⁾ Differs from CEE Publications 10 and 11

²⁰⁾ BS 3042, "Standard test fingers and probes for checking protection against electrical, mechanical and thermal hazard".

²¹⁾ Does not appear in CEE Publications 10 and 11

8.6 For appliances other than those of Class III, handles, levers, and knobs, which are held or actuated in normal use, shall be either of insulating material or adequately covered by insulating material, if their shafts or fixings are likely to become live in the event of an insulation fault.

For stationary appliances, this requirement does not apply to handles, levers and knobs, 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.

8.6.1 TEST. Compliance shall be checked by inspection.

8.7 For appliances other than those of Class III, handles which, in normal use, are continuously held in the hand, shall be so constructed that, when gripped as in normal use, accidental contact between the operator's hand and metal parts which may become live in the event of an insulation fault, is unlikely.

8.7.1 TEST. Compliance shall be checked by inspection and by manual test.

8.8 For Class II appliances, capacitors shall not be connected to accessible metal parts, and their casings, if of metal, shall be separated from accessible metal parts by supplementary insulation.

8.8.1 TEST. Compliance shall be checked by inspection and by the tests specified for supplementary insulation.

8.9 Appliances intended to be connected to the supply by means of a plug shall be so designed that in normal use there is no risk of electric shock at the plug pins from charged capacitors.

8.9.1 TEST. Compliance shall be checked by the following test, which is made ten times. The appliance shall be operated at rated voltage or at the upper limit of the rated voltage range.

The appliances switch, if any, shall then be moved to the OFF position and the appliance disconnected from the supply by means of the plug.

One second after disconnection, the voltage between the pins of the plug shall be measured with an instrument which does not appreciably affect the value to be measured.

This voltage shall not exceed 34 V.

9 Starting of motor-operated appliances

9.1 Motors shall start under the supply voltage conditions which may occur in normal use.

Centrifugal and other automatic starting switches shall operate reliably and without chattering.

Motors to be started by hand shall cause no danger if they are started in the wrong direction.

9.1.1 TEST. Compliance shall be checked by operating the appliance, so loaded that the conditions for starting are the most unfavourable encountered in normal use, ten times at a voltage equal to 0.9²²⁾ times minimum rated voltage, regulating devices, if any, being set as in normal use.

Appliances provided with a centrifugal or other automatic starting switch shall be, in addition, operated ten times at a voltage equal to 1.1 times maximum rated voltage.

Motors to be started by hand shall be started in the correct direction and, if possible, in the wrong direction. In all cases, the appliance shall function safely.

9.2 The starting current of motor-operated appliances shall not blow a quick-acting fuse with a rated current: according to the marking, if the rated current of the appropriate fuse is marked on the appliance, or equal to the rated current of the appliance, with a minimum of 13 A²²⁾, if the rated current of the appropriate fuse is not marked on the appliance.

9.2.1 TEST. Compliance shall be checked by the following test. The appliance shall be connected in series with a silver wire, having a length of 85 mm and a diameter as shown in Table 1.

²²⁾ Differs from CEE Publication 10

Table 1 — Diameter of silver wire

Rated current of fuse	Diameter of silver wire	
	Starting time not exceeding 1 second	Starting time exceeding 1 second
A	mm	mm
13	0.34	0.45
20	0.46	0.60
25	0.53	0.66

The wire shall have a silver content not less than 99.9 % and shall be stretched horizontally along the centre line of a box with inside dimensions of 80 mm × 80 mm × 150 mm. The appliance shall be so loaded that the conditions for starting are the most unfavourable encountered in normal use.

Heating elements incorporated in the appliance shall be operated, but shall not be connected to a separate supply. The appliance shall then be started ten times at a voltage equal to 0.9 times minimum rated voltage and ten times at a voltage equal, to 1.1 times maximum rated voltage. The interval between consecutive starts shall be made sufficiently long to prevent undue heating, but not less than 5 min.

During the test, the silver wire shall not melt and neither shall any overload protection device operate.

The supply source shall be such that there is no significant drop in voltage during the test.

10 Input

10.1 The input of the appliance and of detachable heating elements, at rated voltage and at normal operating temperature, shall not differ from the rated input by more than the variations given in Table 2,

Table 2 — Permissible variations in rated inputs

Type of appliance	Rated input	Variation
Heating	W Not exceeding 100 Exceeding 100	± 10 % ± 5 % or 10 W whichever is greater
Motor-operated	Up to and including 33.3 Over 33.3 up to and including 150 Over 150 up to and including 300 Over 300	± 10 W ± 30 % ± 45 W ± 15 %
Combined	As for heating or motor-operated appliances as indicated by the marking on the appliance	

10.1.1 TEST. Compliance shall be checked by measuring the input of the appliance or detachable heating element, operated at rated voltage and in accordance with conditions of adequate heat discharge and/or normal load when the input has stabilized.

If the load varies the input shall be measured by means of a watthour meter, and shall be determined as the mean value of the input occurring during a representative period.

10.2 ²³⁾ The rated input of portable appliances shall not exceed 3 kW.

10.2.1 TEST. Compliance shall be checked by inspection.

10.3 If the appliance or detachable heating element has a marking for the input in cold condition, this shall not differ by more than 20 % from the marked value.

10.3.1 TEST. Compliance shall be checked by inspection and by measurement.

NOTE For appliances and detachable heating elements marked with one or more rated voltage ranges, the tests described in **10.1.1** and **10.3.1** are made at both the upper and lower limits of the ranges, unless the marking of the rated input is related to the mean value of the relevant voltage range, in which case the tests are made at a voltage equal to the mean value of that range.

²³⁾ Deviation. See Appendix A.

11 Heating

11.1 Appliances and their surroundings shall not attain excessive temperatures in normal use.

11.1.1 TEST. Compliance shall be checked by determining the temperature rise of the various parts under the following conditions.

Hand-held appliances shall be suspended in their normal position, in still air.

Appliance for building-in shall be built in as in normal use, dull black painted plywood walls, about 20 mm thick, being used.

Other appliances shall be placed in normal position, in a right angle test corner consisting of two dull black painted plywood walls 20 mm thick.

Appliances normally used on the floor or a table shall be placed on a dull black painted plywood floor 20 mm thick, as near to the walls as possible.

Appliances normally fixed to a wall shall be mounted on one of the walls, as near to the other wall and to the floor, or to a dull black painted plywood ceiling, as is likely to occur in normal use, unless specific instructions are given by the manufacturer.

Appliances normally fixed to a ceiling shall be fixed to the ceiling, as near to the walls as is likely to occur in normal use.

Temperature rises of windings shall be determined by the resistance method, other temperature rises shall be determined by means of fine-wire thermocouples so chosen and positioned that they have the minimum effect on the temperature of the part under test.

Thermocouples used for determining the temperature rise of the surface of walls, ceiling and floor shall be attached to the back of small blackened discs of copper or brass, 15 mm in diameter and 1 mm thick, which are flush with the surface.

So far as is possible, the appliance shall be positioned so that parts likely to attain the highest temperatures touch the discs.

In determining the temperature rises of handles, knobs and the like, the testing authority shall give consideration to all parts which are gripped in normal use and, if of insulating material, to parts in contact with hot metal.

The temperature rise of electrical insulation, other than that of windings, shall be determined on the surface of the insulation, at places where failure could cause a short-circuit, contact between live parts and accessible metal parts, bridging of insulation or reduction of creepage distances or clearances below the values specified in 29.1.

²⁴⁾ **Heating appliances** shall be operated in accordance with conditions of adequate heat discharge, with all heating elements in circuit, the supply voltage being such that the input is 1.10 times maximum rated input.

²⁴⁾ **Motor-operated appliances** shall be operated under normal load and at the most unfavourable voltage as determined by the testing authority between 0.94 times minimum rated voltage and 1.06 times maximum rated voltage.

²⁴⁾ **For combined appliances** when the motors are operated at 1.06 times maximum rated voltage the input to the heating element shall be as stated above. When the motors are operated at a voltage equal to 0.94 times minimum rated voltage, the input of the heating elements shall be reduced to rated input.

If the motor is operated at an intermediate voltage, the input of the heating element shall be adjusted proportionately.

The appliance shall be operated:

for appliances for short-time operation, and for appliances of the thermal storage type not designed to be on circuit continuously, for the rated operating time.

for appliances for intermittent operation, on consecutive cycles of operation, until steady conditions are established, the ON and OFF periods being the rated ON and OFF periods.

for appliances for continuous operation, until steady conditions are established.

²⁴⁾ Differs from CEE Publications 10 and 11

During the test, thermal cut-outs shall not operate, the temperature rises shall not exceed the values shown in Table 3 and sealing compound, if any, shall not flow out.

NOTE 1 The point of separation of the cores of a multicore cable or cord and where insulated wires enter lampholders, are examples of places where thermocouples are positioned.

NOTE 2 For appliances which are not subjected to the test described in Clause 12, the measurements specified in 13.1 are made at the end of this test.

Table 3 — Permissible temperature rises

Parts	Temperature rise degC
Windings (see Note 1) and core laminations in contact therewith, if the winding insulation is:	
of Class A material (see Note 2)	75 ^a
of Class E material (see Note 2)	90 ^a
of other material (see 11.3)	—
Commutators	100
Pins of appliance inlets complying with BS 3283 ^b and BS 4491 ^c	
for hot conditions	96 ^d
for cold conditions	40
Terminals, including earthing terminals, for external conductors of fixed appliances	60
Switches, thermostats and similar controls marked with individual ratings (see Note 3):	
without T-marking	30
with T-marking	$T_{\max} - 25$
Rubber other than synthetic rubber used for gaskets or other parts the deterioration of which could affect safety:	
when used as supplementary insulation or as reinforced insulation	40
in other cases	50
Lampholders E 27:	
metal or ceramic type	160
insulated type, other than ceramic	120
Lampholders E 14, B 15 and B 22:	
metal or ceramic type	130
insulated type, other than ceramic	90
Flexible cables and cords (also applicable to the insulation of internal and external wiring) (see Note 4):	
vulcanized rubber insulated	50 (35)
PVC insulated, other than heat resisting	50 (45)
PVC insulated (heat resisting)	75 (60)
butyl rubber or ethylene propylene rubber insulated	75 (60)
silicone rubber insulated	175 (125)
varnished glass fibre insulated	175 (135)
Material used as functional insulation other than for wires and windings:	
impregnated or varnished textile, paper or press board laminates bonded with:	70
melamine-formaldehyde, phenol-formaldehyde or phenol-furfural resins	85
urea-formaldehyde resin	65
moulding of:	
phenol-formaldehyde with cellulose fillers	85
phenol-formaldehyde with mineral fillers	100
melamine formaldehyde	75
urea-formaldehyde	65
thermoplastic material (see 11.4)	—

^a Differs from CEE Publication 10

^b BS 3283, "Non-reversible connectors and appliance inlets for portable electrical appliances (for circuits up to 250 volts)"

^c BS 4491, "Appliance couplers for household and similar general purposes".

^d Deviation. See Appendix A.

Does not appear in CEE Publications 10 and 11