



BSI Standards Publication

13 A plugs, socket-outlets, adaptors and connection units

Part 5: Fused conversion plugs – Specification

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Summary of pages

This document comprises a front cover, an inside front cover, pages I to VI, pages 1 to 75, an inside back cover and a back cover.

Foreword

Publishing information

This part of BS 1363 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 May 2023. It was prepared by Technical Committee PEL/23, *Electrical accessories*. A list of organizations represented on this committee can be obtained on request to the committee manager.

Supersession

This part of BS 1363 supersedes [BS 1363-5:2016](#) which remains current and will be withdrawn on 30 June 2026.

Relationship with other publications

BS 1363 is published in the following parts:

- *Part 1: Rewirable and non-rewirable 13 A fused plugs – Specification;*
- *Part 2: 13 A switched and unswitched socket-outlets – Specification;*
- *Part 3: Adaptors – Specification;*
- *Part 4: 13 A fused connection units: switched and unswitched – Specification;*
- *Part 5: Fused conversion plugs – Specification.*

Information about this document

This is a full revision of the document, and introduces the following principal changes:

- the Scope now covers operating frequencies from 50 Hz to 60 Hz;
- current carrying parts made of brass are required to have a minimum content of 58% copper;
- a new requirement has been added for creepage and clearance between fuse and fuse clips and engagement face with fuse carrier or cover removed.

The numbering of figures within this standard remains as in the previous version; however, future revisions will implement consecutive numbering throughout.

[Annex G](#) gives details of the annex renumbering from the 2016 editions of BS 1363, Part 1 to Part 5 to the 2023 editions.

This publication can be withdrawn, revised, partially superseded or superseded. Information regarding the status of this publication can be found in the Standards Catalogue on the BSI website at bsigroup.com/standards, or by contacting the Customer Services team.

Where websites and webpages have been cited, they are provided for ease of reference and are correct at the time of publication. The location of a webpage or website, or its contents, cannot be guaranteed.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Requirements in this standard are drafted in accordance with the *Rules for the structure and drafting of UK standards:2022*, subclause **G.1.1**, which states, “Requirements should be expressed using wording such as: ‘When tested as described in Annex F, the product shall ...’”. This means that only those products that are capable of passing the specified test will be deemed to conform to this standard.

Where words have alternative spellings, the preferred spelling of the Shorter Oxford English Dictionary is used (e.g. “organization” rather than “organisation”).

Contractual and legal considerations

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Conformity with a British Standard cannot confer immunity from legal obligations.

In particular, attention is drawn to the following specific regulations:

- The Plugs and Sockets etc. (Safety) Regulations 1994. SI No. 1768 [\[1\]](#).

1 Scope

This part of BS 1363 specifies requirements, with particular reference to safety in normal use, for 13 A, fused, conversion plugs for household, commercial and light industrial purposes.

Requirements are specified for two-pole plus earth conversion plugs that are either reusable or non-reusable and that are suitable for the connection of non-BS 1363 type plugs, conforming to a recognized standard, to socket-outlets conforming to BS 1363-2:2023.

The scope of this standard is limited to devices with the following characteristics that:

- a) have insulating sleeves on line and neutral pins;
- b) have one plug portion and one set of contacts intended to connect to a non-BS 1363 type plug that conforms to the dimensional requirements of a standard listed in IEC TR 60083;
- c) are suitable for the connection of electrical equipment in a.c. circuits only, operating at voltages not exceeding 250 V r.m.s. and frequencies from 50 Hz to 60 Hz and not exceeding 13 A; and
- d) have the un-terminated metal earth pin replaced with a similarly dimensioned insulated shutter opening device (ISOD) designed to operate the shutter mechanism of a socket-outlet conforming to BS 1363-2:2023.

Two categories of conversion plugs are specified, covering normal and rough use.

Conversion plugs specified in this part of BS 1363 are intended for the connection of loads to socket-outlets; they are not intended for the connection of electrical power generators to socket-outlets.

Conversion plugs incorporating switches, transformers, thermostats or other control means are outside the scope of this part of BS 1363.

This part of BS 1363 also does not cover:

- 1) non-BS 1363 type conversion plugs, i.e. those with a contact set to fit 13 A plugs, and a male plug portion suitable for a non-BS 1363 type socket-outlet;
- 2) adaptors (see [BS 1363-3](#)); or
- 3) travel adaptors (see BS 8546).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes provisions, or limits the application, of this document¹⁾. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

[BS 1362](#), *General purpose fuse links for domestic and similar purposes (primarily for use in plugs) – Specification*

[BS 2572](#), *Specification for phenolic laminated sheet and epoxy cotton fabric laminated sheet*

[BS 2870:1980](#), *Specification for rolled copper and copper alloys: sheet, strip and foil*

BS 4662:2006+A1:2009, *Boxes for flush mounting of electrical accessories – Requirements and test methods and dimensions*

[BS 4800F:2011](#), *Colour matching fan*

BS EN 60695-10-2, *Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test method*

¹⁾ Documents that are referred to solely in an informative manner are listed in the Bibliography.

[BS EN 61032:1998](#), *Protection of persons and equipment by enclosures – Probes for verification*

[BS EN 61180:2016](#), *High-voltage test techniques for low voltage equipment – Definitions, test and procedure requirements, test equipment*

[BS EN IEC 60112:2020](#), *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

[BS EN IEC 60664-1:2020](#), *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

[BS EN IEC 60695-2-11:2021](#), *Fire hazard testing – Part 2-11: Glowing/hot wire based test methods – Glow-wire flammability test method for end-products (GWEPT)*

[BS EN ISO 9453:2020](#), *Soft solder alloys – Chemical compositions and forms*

IEC 60038, *IEC standard voltages*

IEC/TR 60083, *Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC*

3 Terms and definitions

For the purposes of this part of BS 1363, the following terms and definitions apply.

NOTE Where the terms “voltage” and “current” are used, they imply r.m.s. values, unless otherwise stated.

3.1 accessible external surface of a conversion plug

surface that can be touched by test probe B specified in BS EN 61032:1998 when a conversion plug is in full engagement with a corresponding socket-outlet

3.2 basic insulation

insulation applied to live parts to provide basic protection against electric shocks

NOTE Basic insulation does not necessarily include insulation used exclusively for functional purposes.

3.3 calibrated link

calibrated heat source for use in place of a fuse link during temperature rise tests

3.4 class I

method of protection against electric shock which does not rely solely on basic insulation, but which includes means for the connection of exposed conductive parts to a protective conductor in the fixed wiring of the installation

3.5 class II

method of protection against electric shock which does not rely solely on basic insulation, but in which additional safety precautions, such as double insulation or reinforced insulation, are provided, there being no provision for protective earthing or reliance upon installation conditions

NOTE 1 Such a method may be one of the following.

a) Equipment having double and substantially continuous enclosure of insulation material which envelopes all metal parts with the exception of small parts such as name plates, screws and rivets which are isolated from live parts by insulation at least equivalent to reinforced insulation. Such equipment is called “insulated encased class II equipment”.

b) Equipment having a substantially continuous enclosure of metal, in which double insulation is used throughout, except for those parts where reinforced insulation is used. Such equipment is called “metal encased class II equipment”.

c) Equipment that is a combination of types a) and b) above.

NOTE 2 The enclosure of an insulation encased class II appliance might form a part or whole of the supplementary insulation, or reinforced insulation.

NOTE 3 If an appliance with double insulation and/or reinforced insulation throughout has an earthing terminal or an earthing contact, it is of class I construction.

NOTE 4 Class II appliances may have parts in which protection against electric shock relies on operation at safety extra-low voltage (SELV).

3.6 clearance

shortest distance in air between two conductive parts

3.7 conversion plug

fused device that can be engaged with a socket-outlet conforming to [BS 1363-2](#), that is designed to enclose the non-BS 1363 type plug, and enables it to be engaged with such a socket-outlet

3.8 creepage distance

shortest distance along the surface of the insulating material between two conductive parts

3.9 dangerous compatibility

unsafe condition that occurs when a conversion plug allows a non-BS 1363 type plug of a higher current rating or different voltage rating than that of the conversion plug to be fitted, and/or when a class I non-BS 1363 type plug could be fitted into a class II conversion plug

3.10 engagement surface of a conversion plug

surface that cannot be touched by test probe B specified in BS EN 61032:1998 when a conversion plug is in full engagement with a corresponding socket-outlet

3.11 fine wire thermocouple

thermocouple having wires not exceeding 0.3 mm in diameter

3.12 functional insulation

insulation between conductive parts that is necessary only for the proper functioning of the equipment

3.13 fuse carrier

movable or removable part designed to carry, retain, cover, and/or remove the fuse-link

3.14 indicator lamp (pilot lamp)

lamp or similar device that illuminates to indicate that the conversion plug is energized

3.15 insignificant mass

insufficient combustible mass to constitute a fire hazard

NOTE Parts of insignificant mass are usually less than 2 g.

3.16 insulated shutter opening device (ISOD)

protrusion from the engagement surface of the plug, in place of the brass earth pin, made of insulating material having dimensions similar to those of a brass earth pin

3.17 live parts

current-carrying parts and those metal parts in contact with them during normal use

NOTE Metal parts of the earthing circuit are not considered to be current-carrying parts.

3.18 non-BS 1363 plug

plug which is not suitable without adaptation or modification for connection to a mains socket conforming to [BS 1363-2](#) and suitable for use at 230 V

NOTE It should be a plug conforming fully to a standard such as IEC 60884-1 or equivalent for safety aspects.

3.19 non-reusable conversion plug

conversion plug, the intended use of which is on one non-BS 1363 type plug only and which cannot be removed without rendering it unfit for use

3.20 normal use

conditions during use which:

- a) do not exceed the conditions intended by the manufacturer;
- b) are not excessive, rough use or gross misuse; and
- c) do not exceed reasonably foreseeable conditions of misuse

3.21 normal use conversion plug

conversion plug intended for normal use

3.22 passive device

device containing:

- a) components such as capacitors, inductors, resistors, filters and surge protectors;
- b) electromechanical components such as connectors and devices for overcurrent protection; and
- c) mechanical relays and mechanical switches

NOTE Attention is drawn to the difference between an active and a passive device. An active device is one containing active components such as integrated circuits, transistors, diodes, rectifiers, triacs and opto-semiconductors.

3.23 reinforced insulation

single insulation system applied to live parts that provides a degree of protection against electric shock equivalent to double insulation under the conditions specified in the relevant standard

3.24 resilient material

material having the inherent capability of regaining or substantially regaining its original form when deforming loads are removed

3.25 retention

part of the conversion plug that is deemed to have an active part in the retention of the non-BS 1363 type plug within the body of the conversion plug

3.26 reusable conversion plug

conversion plug intended for use with one non-BS 1363 type plug only, and which is:

- able to be reused without damaging either the non-BS 1363 type plug which was housed in it, a new non-BS 1363 type plug or itself;
- designed such that the non-BS 1363 type plug can only be removed by the use of a tool; and
- deemed as low use in terms of removal from and refitting to a non-BS 1363 type plug

NOTE Low use is less than 10 removal and refitting operations during the conversion plug lifetime.

3.27 rough-use conversion plug

conversion plug designed to withstand severe mechanical handling

NOTE Rough-use conversion plugs are identified by additional marking in accordance with 7.1c). They are not intended for gross misuse, e.g. withdrawal from a socket-outlet by pulling on the flexible cable.

3.28 small parts

parts where each surface lies completely within a circle of 15 mm diameter or where some of the surface lies outside the 15 mm diameter circle but in such a way that it is not possible to place a circle of 8 mm diameter on any of this remaining surface

[SOURCE: BS EN IEC 60695-2-11:2021, 3.15, modified]

3.29 supplementary insulation

independent insulation applied in addition to the basic insulation, in order to provide protection against electric shock in the event of the failure of basic insulation

3.30 type test

test or series of tests made on a type test sample for the purpose of checking conformity of the design of a given product to the requirements of the relevant standard

3.31 type test sample

sample consisting of one or more similar units or specimens submitted by the manufacturer or responsible vendor for the purpose of type testing

4 Classification and ratings

4.1 Classification

A conversion plug shall be classified as follows, as appropriate:

- a) reusable or non-reusable;
- b) normal use or rough use; and
- c) intended for class I applications (fitted with metal earth pin), or intended for class II applications only (fitted with un-terminated metal earth pin or ISOD).

4.2 Ratings

The rated current of the conversion plug shall be equivalent to the rated current of the plug to be accommodated or 13 A, whichever is the lower.

The rated voltage of the conversion plug shall be 250 V.

5 General requirements

5.1 Environmental parameters

COMMENTARY ON 5.1

Under conditions of use, the available cooling air is subject to natural atmospheric variations of temperature and hence the peak temperature occurs only occasionally during the hot season, and on those days when it does occur it does not persist for lengthy periods.

A conversion plug shall be suitable for use under the following conditions:

- a) an ambient temperature in the range -5°C to $+40^{\circ}\text{C}$, the average value over 24 h not exceeding 25°C ;
- b) a situation not subject to exposure to direct radiation from the sun or other source of heat likely to raise temperatures above the limits specified in a);
- c) an altitude not exceeding 2 000 m above sea level; and
- d) an atmosphere not subject to abnormal pollution by smoke, chemical fumes, rain, spray, prolonged periods of high humidity or other abnormal conditions.

NOTE This is equivalent to pollution degree 2 (see [Annex A](#)), and Overvoltage Category III (see [Annex B](#)).

5.2 Performance requirement

A conversion plug shall be so designed and constructed that in meeting all of the requirements of this standard it can be deemed to be reliable and to minimize the risk of danger to the user or to the surroundings.

5.3 Passive devices

Incorporated passive devices shall conform to the relevant product standard as far as it reasonably applies. Passive devices shall not be used in reusable conversion plugs.

6 Testing regime

6.1 Principle

All tests shall be type tests.

6.2 Environmental conditions

Unless otherwise specified in this standard, conversion plugs shall be tested at an ambient temperature of $(20 \pm 5)^{\circ}\text{C}$ after being conditioned at normal laboratory temperature and humidity levels for at least 96 h.

6.3 Test samples

Conversion plugs used for the tests shall be representative of normal production items in respect of all details that might affect the test results.

Non-reusable conversion plugs shall be supplied with the non-BS 1363 type plug and cable which shall be at least 1 m long.

Non-reusable conversion plugs supplied with a passive device (see [5.3](#)) shall be tested as supplied.

6.4 Conformity criteria

Conversion plugs shall be deemed to conform to this standard if no sample fails in the complete series of tests given in [Table 1](#). A sample shall consist of a conversion plug and the fitted non-BS 1363 plug.

Table 1 — *Schedule of tests*

Sequence	Samples	Requirements and tests	Clause number
1 ^{A)}	3	Inspection, measurement, gauging and manipulation	4 , 5 , 6 , 7 , 9.1 , 9.2 , 9.4 , 12.1 , 12.2 , 12.3 , 12.4 , 12.6 , 12.8 (12.8.1 , 12.8.2 , 12.8.8 , 12.8.12 , 12.8.13 , 12.8.14 only), 19.2 , 19.3 , 21 , 8 (including Annex C)
2	3	General	5 , 9.3 , 19.1 , 12.8.11 , 12.8.15 , 12.8.16
3	3		5 , 11 , 16
4	3		5 , 14.2 , 15 , 12.8.17
5	3		5 , 14.1 , 20.2 , 20.3 , 16 , 12.7 , 10.1 , 12.8.9 , 12.5 , 12.8.10 , 21.2
6	3*		5 , 12.8.3
7 a)	9	Additional tests for a conversion plug with non-solid pins (wear to socket contacts for conversion plugs with non-solid pins)	5 , 12.8.6
7 b)	6	Additional tests for a conversion plug with non-solid pins	12.8.4
7 c)	3	Additional tests for a conversion plug fitted with ISODs (wear to socket contacts for conversion plugs with ISODs)	5 , 12.8.7
7 d)	3	Additional tests for a conversion plug fitted with ISODs	5 , 12.8.5
8	3	Materials	5 , 22
9	3		5 , 23.2
10	3		5 , 21.2 , 24

NOTE * denotes that an additional three samples will be required for conversion plugs with non-solid pins.

^{A)} The order of tests given in sequence one is preferred but not obligatory except where required within the text of the appropriate clause.

If one sample fails in a complete series of tests given in [Table 1](#), conversion plugs of that type shall be deemed to have failed to conform to this standard, unless that sample is shown to be not representative of normal production or design. In the latter case, a further type test sample shall be submitted to the test or tests in that particular group. If there is no failure in the retest, conversion plugs of that type shall be deemed to conform to this standard.

If more than one sample fails in the complete series of tests given in [Table 1](#), conversion plugs of that type shall be deemed not to conform to this standard.

6.5 Inspection and test

For type testing, all tests have been included in the test schedule and shall be performed in the specified order.

All inspections and tests of any one classification (see [Clause 4](#)) shall be performed, as specified in the clauses listed in [Table 1](#), on the number of samples in the samples column and in the order given.

References in various clauses to performing specific tests shall not be taken to indicate a sequence of testing different to that in the schedule and shall not be conducted as separate additional tests.

6.6 Gauge tolerances

Gauges in accordance with [Figure 5](#) and [Figure 11](#) shall be considered to conform to the dimensional requirements if the measured values are within the specified dimensions and the uncertainty of measurement at not less than 95% confidence level does not exceed ± 0.005 mm.

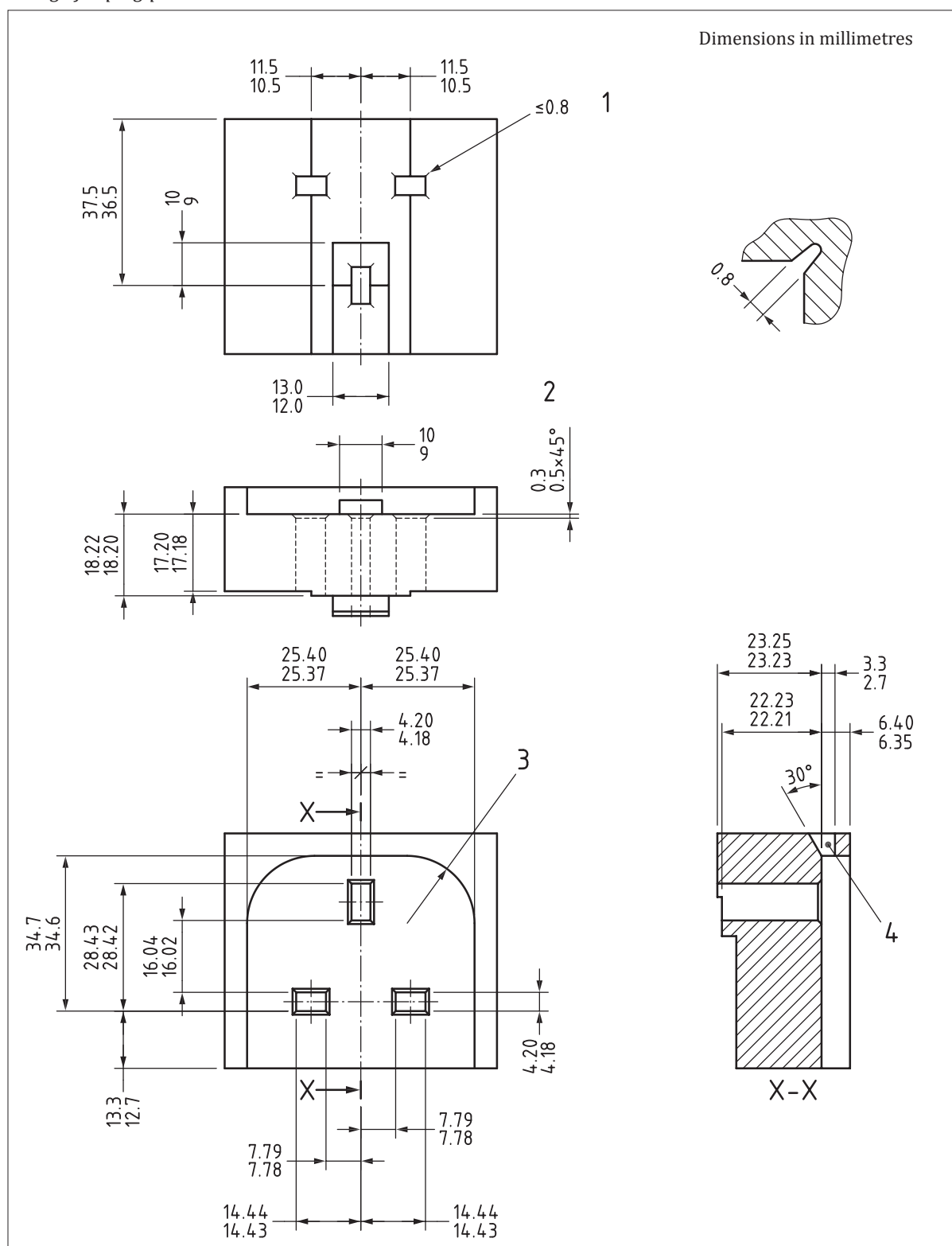
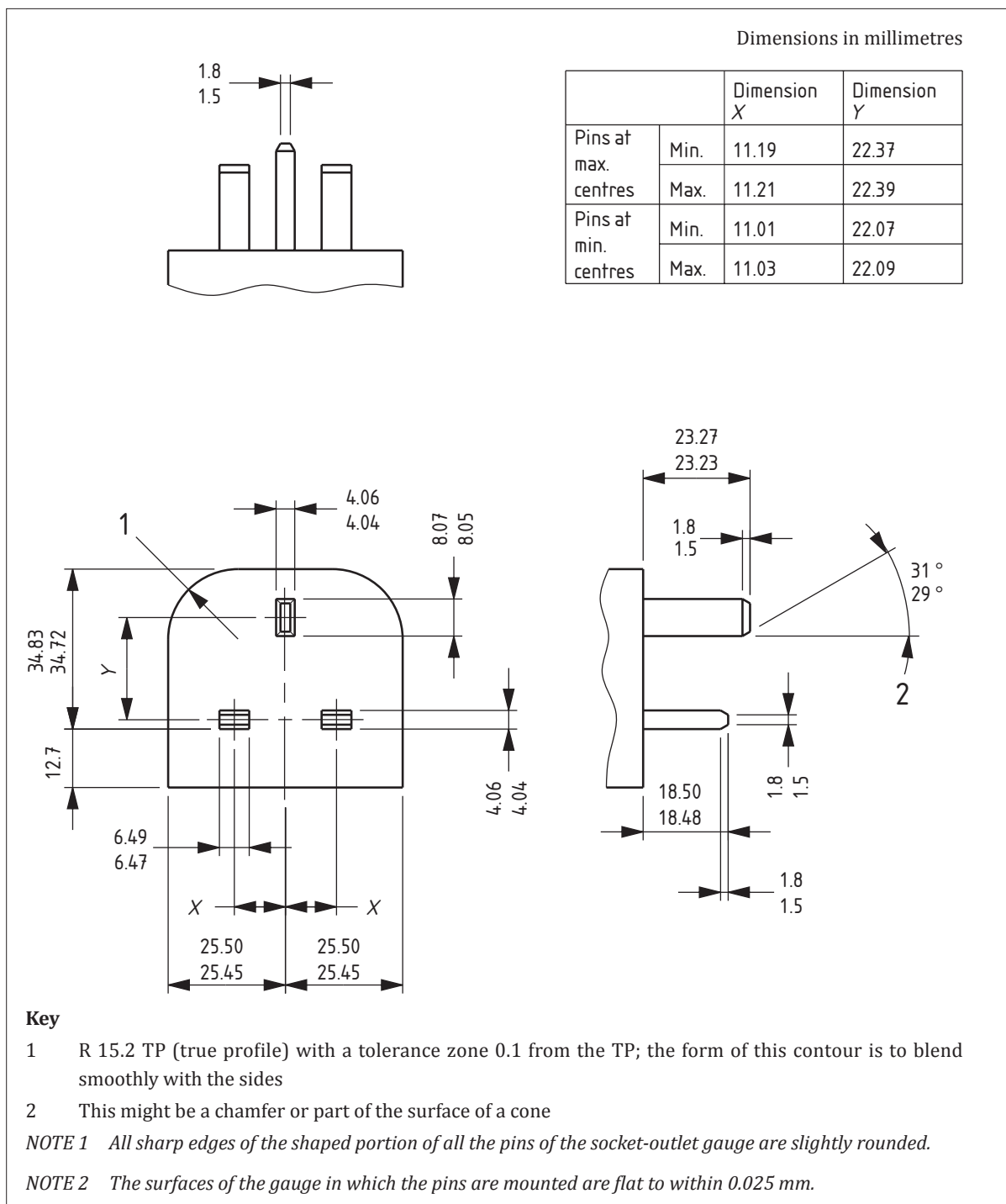
Figure 5 — Gauge for plug pins

Figure 5 — Gauge for plug pins (continued)**Key**

- 1 Corners may be relieved up to width of 0.8 as shown
- 2 Chamfer all round
- 3 Radius = 15.088 TP (true profile) with a tolerance zone 0.100 wide, ± 0.050 from the TP; the form of this contour is to blend smoothly with the sides.
- 4 Slot optional

NOTE Gauge might be fabricated in several component parts, providing assembly is within dimensions shown.

Figure 11 — GO gauge for socket-outlet

7 Marking and labelling

7.1 Requirements for marking

Conversion plugs shall be legibly and durably marked with the following information, which shall not be placed on screws, removable washers or other easily removable parts, or upon parts intended for separate sale:

- a) the name, or trademark or identification mark of the manufacturer or responsible vendor, which might be duplicated on a removable fuse carrier;
- b) the number of this British Standard, i.e. BS 1363²⁾;
- c) for rough use conversion plugs, the number of this British Standard shall be followed by “/A”;
- d) the words “FUSE” or “FUSED” or the symbol (given in 7.4) on the external accessible surface of the conversion plug;
- e) the rated voltage;
- f) the maximum rating, in amperes, of the equipment, fitted with the non-BS 1363 type plug, to which the conversion plug might be fitted (as given in Table 2) or the rated current of the non-BS 1363 plug to be engaged, with a maximum current of 13 A;
- g) an instruction as to which non-BS 1363 type plugs the conversion plug was designed for use with (e.g. “Fit XXX Plugs Only”, where XXX is the description of the non-BS 1363 type plug type);
- h) for conversion plugs compatible with plugs of a different voltage rating, a warning such as “This conversion plug does not convert voltage”;

NOTE An example of dangerous compatibility would be a piece of equipment rated for a 110 V supply that might inadvertently be connected through a conversion plug to a 230 V supply. Such equipment would either need to be rated at 110 V to 230 V (switch mode power supply), or have a means to switch it to 230 V before connecting it to a 230 V supply.

- i) non-reusable conversion plugs fitted with passive devices (see 5.3) shall be marked with the identifier of any standard to which conformity of the passive device is claimed and, if applicable, the specification of the passive device, e.g. X mH (inductive load).

When tested in accordance with 7.2, the marking shall remain legible. Markings produced by an engraving or moulding process shall be deemed to conform without test.

²⁾ Marking BS 1363 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is solely the claimant's responsibility. Such a declaration is not to be confused with second or third-party certification of conformity. Further testing and conformity certification remains at the discretion of the manufacturer and is not a requirement of this standard.

Table 2 — Rated current and maximum fuse rating in normal use, and load for flexing and cable grip tests related to size of flexible cable

Flex cable nominal cross-sectional area	Rated current	Test current ± 0.4 A	Fuse rating	Load for flexing test +2%, -0%	Non-BS 1363 plug retention test Load +2%, -0%	Torque ^{A)} Nm
mm ²	A	A	A	kg	kg	
0.5	3	3.5	3 (5) ^{B)}	1	3	0.15
0.75	6	7	7 (13) ^{B)}	1	3	0.20
1 (0.75) ^{C)}	10	11	10 (13) ^{B)}	2	3	0.25
1.25 (1) ^{C)}	13	14	13	2	6	0.30
1.5	13	14	13	2	6	0.35

^{A)} The recording of a measured value of torque in accordance with this table is considered to conform to this part of BS 1363 on condition that the uncertainty of measurement at not less than 95% confidence level does not exceed $\pm 10\%$.

^{B)} The figure in brackets indicates the maximum fuse rating when a conversion plug is used with an appliance where the manufacturer specifies a higher rating of fuse is appropriate for the particular appliance.

^{C)} The figure in brackets indicates the flexible cable size which may be used for cable sets where conversion plugs are used with a maximum flexible cable length of 2 m.

7.2 Test method

Rub the marking for approximately 15 s with a cloth soaked in water, and again for approximately 15 s with a cloth soaked in an aliphatic solvent hexane with a content of aromatics of maximum 0.1% by volume, a Kauri-butanol value of 29, initial boiling point of approximately 69 °C and relative density of approximately 0.68.

Observe whether the marking is legible.

7.3 Requirements for labelling

Conversion plugs shall be provided with adequate instructions for the safe attachment, use and detachment of appropriate non-BS 1363 type plugs.

Conversion plugs shall have a label indicating the rating of the fuse-link fitted, e.g. “Fitted with X ampere fuse” (where X denotes the rating of the fuse-link) and permanent marking for the highest rated fuse that can be used in the conversion plug.

7.4 Symbols

Symbols used in marking or labelling shall be as follows:

amperes	A
volts	V
fuse	

8 Clearances, creepage distances and solid insulation

8.1 General

As a minimum, conversion plug assemblies including corresponding non-UK plugs shall conform to the requirements for functional insulation and/or for basic insulation in [8.2.3](#) and [8.3.3](#). If the

manufacturer declares an insulation level exceeding basic insulation then the conversion plug shall be tested accordingly.

The distance between lead wires in the pinch of a neon lamp with an external resistor shall be not less than 1 mm.

NOTE 1 The requirements and tests given in this clause are based on [BS EN IEC 60664-1](#).

NOTE 2 Product insulation consists of basic insulation and protective earthing as required by BS EN 61140 for class I equipment.

8.2 Clearances

8.2.1 Requirements

Conversion plugs energized directly from the low voltage supply shall be deemed to fall into Overvoltage Category III, as defined in [Annex B](#).

Clearances shall withstand the rated impulse voltage declared by the manufacturer taking account of the rated voltage and the Overvoltage Category in accordance with [Annex B](#), and the pollution degree declared by the manufacturer as given in [Annex A](#).

8.2.2 Test method

Remove all parts that can be removed without the use of a tool. Place all movable parts that can be assembled in different orientations in the most unfavourable position.

Check conformity to [8.2.1](#).

NOTE Movable parts are, for example, hexagonal nuts, the position of which cannot be controlled throughout an assembly.

8.2.3 Clearances for basic insulation

8.2.3.1 Requirements

Clearances for basic insulation shall be either:

- a) not less than the values given in [Table 3](#); or
- b) unspecified and less than the values given in [Table 3](#), except those values marked with footnote B), where the accessory conforms to [Annex D](#) at the impulse voltage specified in [Annex B](#), but only if the parts are rigid or located by mouldings, or if the construction is such that it is unlikely that distances will be reduced by distortion or by movement of the parts during mounting, connection and normal use.

Table 3 — Minimum clearances for basic insulation

Rated impulse withstand voltage	Minimum clearances in air up to 2 000 m above sea level
kV ^{A)}	mm
0.33	0.2 ^{B)}
0.50	0.2 ^{B)}
0.80	0.2 ^{B)}
1.5	0.5
2.5	1.5
4.0	3.0
6.0	5.5

Table 3 — *Minimum clearances for basic insulation (continued)*

Rated impulse withstand voltage kV ^{A)}	Minimum clearances in air up to 2 000 m above sea level mm
^{A)} See Annex B . This voltage is: • for functional insulation: the maximum impulse voltage expected to occur across the clearance; • for basic insulation directly exposed to or significantly influenced by transient overvoltage from the low voltage mains: the rated impulse withstand voltage of the conversion plug; or • for other basic insulation: the highest impulse voltage that can occur in the circuit.	
^{B)} Minimum clearance values are based on BS EN IEC 60664-1 .	

8.2.3.2 Test method

Check by inspection, and if necessary, by measurement in accordance with [Annex E](#), or by the impulse voltage test specified in [Annex D](#).

8.2.4 Clearances for functional insulation**8.2.4.1 Requirements**

The clearances for functional insulation shall be not less than the values specified for basic insulation in [Table 3](#).

8.2.4.2 Test method

Check by inspection, and if necessary by measurement in accordance with [Annex E](#), or by the impulse voltage test specified in [Annex D](#).

8.2.5 Clearances for supplementary insulation**8.2.5.1 Requirements**

The clearances for supplementary insulation shall be not less than the values specified for basic insulation in [Table 3](#).

8.2.5.2 Test method

Check by inspection, and if necessary by measurement in accordance with [Annex E](#), or by the impulse voltage test specified in [Annex D](#).

8.2.6 Clearances for reinforced insulation**8.2.6.1 Requirements**

The clearances for reinforced insulation shall be not less than the values specified for basic insulation in [Table 3](#) but using the next higher step for rated impulse withstand voltage given therein. Plug pins shall not be included in this requirement.

8.2.6.2 Test method

Check by inspection, and if necessary by measurement in accordance with [Annex E](#), or by the impulse voltage test specified in [Annex D](#). Observe whether test samples conform to [8.2.1](#).

8.3 Creepage distances

8.3.1 Requirements

Creepage distances shall be dimensioned for the voltage that is expected to occur in normal use, taking into account the pollution degree and the material group as declared by the manufacturer.

A creepage distance shall be not less than the associated clearance.

8.3.2 Test method

Remove all those parts that can be removed without the use of a tool. Place movable parts which can be assembled in different orientations in the most unfavourable position.

NOTE 1 Movable parts are, for example, hexagonal nuts, the position of which cannot be controlled throughout an assembly.

Measure creepage distances in accordance with [Annex E](#) and comparative tracking index (CTI) values or proof tracking index (PTI) in accordance with [Annex C](#).

The relationship between material group and between (CTI) values and (PTI) values is as follows:

Material group I	$600 \leq \text{CTI/PTI}$
Material group II	$400 \leq \text{CTI/PTI} < 600$
Material group IIIa	$175 \leq \text{CTI/PTI} < 400$
Material group IIIb	$100 \leq \text{CTI/PTI} < 175$

NOTE 2 For glass, ceramics and other inorganic materials that do not track, creepage distances need not be greater than their associated clearance.

8.3.3 Creepage distances for basic insulation

8.3.3.1 Requirements

The creepage distances for basic insulation shall be not less than the values given in [Table 4](#).

Table 4 — Minimum creepage distances (mm) for basic insulation

Rated voltage ^{A)} V (r.m.s.)	Pollution degree 2 ^{B)}			Pollution degree 3 ^{B)}		
	Material group			Material group		
Up to and including						
—	I	II	IIIa/IIIb	I	II	IIIa
250	1.3	1.8	2.5	3.2	3.6	4.0

^{A)} This voltage is the voltage rationalized through [BS EN IEC 60664-1:2020](#), Table E.3a and Table E.3b based on the nominal voltage of the supply system.

^{B)} The pollution degrees are set out in [Annex A](#).

8.3.3.2 Test method

Check by inspection, and if necessary by measurement in accordance with [Annex E](#).

8.3.4 Creepage distances for functional insulation

8.3.4.1 Requirements

The creepage distances for functional insulation shall be not less than the values specified for basic insulation in [Table 4](#).

8.3.4.2 Test method

Check by inspection, and if necessary by measurement in accordance with [Annex E](#).

8.3.5 Creepage distances for supplementary insulation**8.3.5.1 Requirements**

The creepage distances for supplementary insulation shall be not less than the values specified for basic insulation in [Table 4](#).

8.3.5.2 Test method

Check by inspection, and if necessary by measurement in accordance with [Annex E](#).

8.3.6 Creepage distances for reinforced insulation**8.3.6.1 Requirements**

The creepage distances for reinforced insulation shall be not less than those derived from twice the distance specified for basic insulation in [Table 3](#). This requirement shall not be applied to the sleeves of the plug pins.

8.3.6.2 Test method

Check by inspection, and if necessary by measurement in accordance with [Annex E](#).

8.4 Solid insulation**8.4.1 Requirements**

Solid insulation used for basic, supplementary and reinforced insulation shall be capable of withstanding electrical stresses that can occur in normal use.

NOTE No minimum thickness is specified for solid insulation.

8.4.2 Test method

Check by inspection, and if necessary by measurement in accordance with [Annex E](#) or by the impulse voltage test specified in [Annex D](#).

8.4.3 Basic and supplementary solid insulation**8.4.3.1 Requirements**

Basic and supplementary solid insulation shall withstand the required impulse voltage declared by the manufacturer of the conversion plug, as specified in [8.2.1](#) for Overvoltage Category III.

8.4.3.2 Test method

Following the impulse withstand voltage test, observe whether the insulation continues to conform to the requirements of [15.2](#) using the values specified in [Table 5](#).

Table 5 — *Withstand voltages for insulation types*

Insulation V (r.m.s.)	Test voltage
Functional insulation	1 500
Basic insulation	1 500
Supplementary insulation	1 500
Reinforced insulation	3 000

8.4.4 Reinforced solid insulation

8.4.4.1 Requirements

Reinforced insulation shall be dimensioned to withstand the required impulse voltage, but one step higher than that for basic and supplementary insulation specified in [Table 5](#).

8.4.4.2 Test method

Following the impulse withstand voltage test, observe whether the insulation continues to conform to the requirements in [15.2](#) using the values specified in [Table 5](#).

9 Accessibility of live parts

9.1 Accessibility of live parts

9.1.1 Requirements

Live parts of conversion plugs shall not be accessible when correctly fitted with an associated non-BS 1363 type plug and in full engagement with a corresponding 13 A socket-outlet.

9.1.2 Test method

Apply a force of 5_{-1}^0 N with test probe 12, as specified in BS EN 61032:1998, to a conversion plug fitted with an appropriate non-BS 1363 type plug and flexible cable, to all apertures.

Check whether the conversion plug with its associated non-UK plug has deformed to such an extent that live parts can be touched with the probe.

9.2 Construction to protect against accidental contact with live parts

9.2.1 Requirements

Conversion plugs shall be designed and constructed to protect the user against accidental contact with live parts during insertion and withdrawal from corresponding socket-outlets, and in intended use.

9.2.2 Test method

Check the dimensions, gauging and construction of the samples for conformity to [12.2](#).

9.3 Construction of resilient covers

9.3.1 Requirements

Resilient covers of conversion plugs shall be so designed and constructed that when assembled with a non-BS 1363 type plug as in normal use there is no risk that, as a result of undue pressure, live parts could penetrate the cover or become so disposed as to reduce creepage distances and clearances below those specified in [Clause 8](#).

During the test no flashover or breakdown shall occur.

9.3.2 Test method

Apply a steady force of 240_{-10}^0 N through a metal test pressure block as illustrated in [Figure 2a\)](#) and [Figure 2b\)](#) at each place where the possibility of failure exists in turn. During each application of force, apply a test voltage of $(2\,000 \pm 60)$ V, 50 Hz of substantially sinusoidal waveform for 60 s between all live parts bonded together and the metal test pressure block.

Figure 2a) — Apparatus for mechanical strength test on resilient covers