

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

Part 1: Specification for rewirable and non-rewirable 13 A fused plugs

ICS 29.120.30

Committees responsible for this British Standard

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ASTA Certification Services
 Association of Consulting Engineers
 Association of Control Manufacturers [TACMA (BEAMA Ltd.)]
 Association of Manufacturers of Domestic Electrical Appliances
 British Electrical Systems Association (BEAMA Ltd.)
 British Electrotechnical Approvals Board
 British Plastics Federation
 Consumer Policy Committee of BSI
 Department of Health
 Department of Trade and Industry (Consumer Safety Unit, CA Division)
 BEAMA Installation
 Electricity Association
 Electronic Components Industry Federation
 Institution of Electrical Engineers
 Lighting Association
 Lighting Industry Federation Ltd.
 National Inspection Council for Electrical Installation Contracting
 The following bodies were also represented in the drafting of the standard, through subcommittees and panels:
 British Cable Makers' Confederation
 British Radio and Electronic Equipment Manufacturers' Association
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Foreword

This part of BS 1363 is published by BSI Standards Limited, under licence from The British Standards Institution. It has been prepared by Technical Committee PEL/23. This part of BS 1363, together with BS 1363-2:1995, supersedes BS 1363:1984.

BS 1363-1:1995+A4:2012 supersedes BS 1363-1:1995 (incorporating Amendments Nos. 1:1997, 2:2003 and 3:2007), which, however, remains current and will be withdrawn on 31 May 2015.

The start and finish of text introduced or altered by Amendment No. 3 and Amendment No. 4, respectively is indicated in the text by tags **A3** **A3** and **A4** **A4** respectively. Text introduced or altered by Amendment No. 1 and by Amendment No. 2 is not tagged. The start and finish of text introduced or altered by Corrigendum No. 1 is indicated in the text by tags **C1** **C1**. Minor editorial corrections are not tagged.

BS 1363 comprises four parts covering the following.

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

NOTE In order to prevent confusion with BS 1363:1984, the figure and clause numbers have been retained.

BS 6500, which is called up in this part of BS 1363, has been superseded by BS EN 50525. In the transition period up until 31 December 2012 flexible cords to either standard may be used. After that date all cords have to be to the relevant part of BS EN 50525.

The structure of BS EN 50525 and its derivation from British Standards and HD 21 and HD 22 is set out in BS EN 50525-1:2011, National Annex NA. This is reproduced in Annex G for the convenience of users of this part of BS 1363.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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

Attention is drawn to Statutory Instrument 1768, 1994.

Summary of pages

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

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1 Scope

This part of BS 1363 specifies requirements for 13 A fused plugs having insulating sleeves on line and neutral pins, for household, commercial and light industrial purposes, with particular reference to safety in normal use. The plugs are suitable for the connection of portable appliances, sound-vision equipment, luminaires, etc. in a.c. circuits only, operating at voltages not exceeding 250 V r.m.s. at 50 Hz.

Requirements are specified for plugs incorporating a fuse link complying with BS 1362:1973. The plugs may be rewirable or non-rewirable complete with flexible cord. Two categories of plugs are specified covering normal and rough use. ^{A4} Rewirable plugs are intended for use with flexible cords complying with BS 6500:2000, or equivalent cords to the relevant part of BS EN 50525 (see Annex G), having conductor cross-sectional areas from 0.5 mm² to 1.5 mm² inclusive. ^{A4}

NOTE 1 See 19.1.

Non-rewirable plugs are intended for use with flexible cords having conductor cross-sectional areas not exceeding 1.5 mm².

NOTE 2 See 19.4.

This standard also applies to non-rewirable 13 A plugs which have the brass earth pin replaced with a similarly dimensioned protrusion made of insulating material designated as an insulated shutter opening device (ISOD) designed to operate the shutter mechanism of a socket-outlet conforming to BS 1363-2.

^{A4} Plugs containing devices other than switches and indicator lamps are outside the scope of this part of BS 1363. ^{A4}

^{A3} NOTE 3 Brass can be copper, phosphor-bronze or other metal at least equivalent with regard to its conductivity, resistance to abrasion and resistance to corrosion. ^{A3}

^{A3} NOTE 4 ^{A3} The titles of the publications referred to in this part of BS 1363 are listed on the inside back cover

^{A3} NOTE 5 ^{A3} In order to maintain safety and interchangeability with plugs and socket-outlets it is necessary that these products comply with the requirements of Clause 9, 12 and 13 of this part of BS 1363, however their body outline need not be limited at a distance of 6.35 mm from the plug engagement ^{A3} surface. ^{A3}

^{A3} NOTE 6 ^{A3} Requirements for electromagnetic compatibility are not given for the following reasons.

A plug does not emit intolerable electromagnetic interference since significant electromagnetic disturbances are only generated during insertion and withdrawal which are not continuous.

A plug is mechanical by nature of construction. The product is therefore immune from electromagnetic interference.

2 Conditions of use

Plugs 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 ;

NOTE Under normal 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.

- 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;
- d) an atmosphere not subject to abnormal pollution by smoke, chemical fumes, rain, spray, prolonged periods of high humidity or other abnormal conditions. This is equivalent to pollution degree 2, see Annex E, and overvoltage category III, see Annex D.

3 Terms and definitions

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

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

3.1

plug

a portable fused device having projecting pins designed to engage with the contacts of a corresponding socket-outlet. A plug also incorporates means for the electrical connection and the mechanical retention of a suitable flexible cord

3.2

rough-use plug

a plug designed to withstand severe mechanical handling

NOTE Rough-use plugs are identified by additional marking in accordance with 7.1c). They are not intended for gross misuse. For instance, a plug should not be withdrawn from a socket-outlet by pulling on the attached flexible cord.

3.3

rewirable plug

a plug so constructed that a flexible cord can be fitted or replaced using general purpose tools

3.4

non-rewirable plug

A4 a plug so constructed that it forms a complete unit with the flexible cord which cannot be replaced after assembly by the manufacturer of the plug **A4**

NOTE See also 12.6.

3.5

moulded-on plug

a non-rewirable plug, the manufacture of which is completed by insulating material moulded around pre-assembled component parts and the terminations of the flexible cord

3.6

fused plug

a plug having provision for a replaceable cartridge fuse link

3.7

terminal

a means by which the user can make an electrical connection between the appropriate flexible cord and the conducting parts of the plug without the use of special purpose tools

3.8

screw-type terminal

a terminal in which the connection is made directly by means of screws or nuts of any kind or indirectly through an intermediate metal part such as a washer, clamping plate or anti-spread device on which the screw bears directly

NOTE The following are examples of screw-type terminals.

- a) A pillar terminal is a terminal in which the conductor is inserted into a hole or cavity, where it is clamped under the shank of the screw or screws.
- b) A screw terminal is a terminal in which the conductor is clamped under the head of the screw.
- c) A stud terminal is a terminal in which the conductor is clamped under a nut.

3.9

clamp type (screwless) terminal

a terminal in which the connection is made by clamping the conductor of a flexible cord between two metallic surfaces without the use of a screw

3.10

termination

a means by which an electrical connection can be made between the appropriate flexible cord and the conducting part of the plug using special purpose tools, e.g. soldering, welding, crimping

3.11

fuse carrier

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

3.12

type test

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

3.13**type test sample**

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

3.14**accessible external surfaces of a plug**

all surfaces which can be touched by test probe B of BS EN 61032:1998 when the plug is in full engagement with a corresponding socket-outlet

3.15**engagement surface of a plug**

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

3.16**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.

3.17**fine wire thermocouple**

a thermocouple having wires not exceeding 0.3 mm in diameter

3.18**calibrated link**

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

3.19**indicator lamp (pilot lamp)**

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

3.20**resilient material**

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

3.21**creepage distance**

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

3.22**clearance**

shortest distance in air between two conductive parts

3.23**Insulated Shutter Opening Device (ISOD)**

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

3.24**basic insulation**

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

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

3.25**supplementary insulation**

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

3.26**reinforced insulation**

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

3.27**functional insulation**

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

A3 3.28**class I**

method of protection against electric shock which does not rely on basic insulation only, but which includes means for the connection of exposed-conductive-parts to a protective conductor in the fixed wiring of the installation A3

A3 3.29 A3**class II**

A3 method of protection against electric shock which does not rely on basic insulation only, A3 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

A3 NOTE 1 Such a method may be one of the following.

- a) Equipment having a 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. A3

NOTE 2 The enclosure of an insulation encased class II appliance may 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).

A4 3.30**insignificant mass**

insufficient combustible mass to constitute a fire hazard

NOTE Parts of insignificant mass are usually less than 2 g. A4

A4 3.31**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

[BS EN 60695-2-11:2001, 3.1, modified]

NOTE More information concerning small parts can be found in BS EN 60695-2-11:2001, 3.1. A4

A4 3.32**switched plug**

a plug with associated switch or switches to disconnect the supply to the line terminal/termination or to both line and neutral terminals/terminations A4

A4 3.33**actuating member**

that part which is moved, e.g. pulled, pushed or turned by the user, to operate the switch mechanism of a switched plug A4

4 General

Plugs shall be so designed and constructed that in normal use their performance is reliable and minimizes the risk of danger to the user or to the surroundings. Such plugs shall be capable of meeting all the relevant requirements and tests specified in this part of BS 1363. **A3** Plugs shall not be used for the connection of electrical power generators to socket outlets. **A3**

A4 Throughout this standard, where flexible cords to BS 6500 are referred to these may be replaced by equivalent cords (now referred to as cables) to BS EN 50525 which has superseded BS 6500; when BS 6500 is withdrawn, equivalent cables (cords) to BS EN 50525 shall be used. **A4**

5 General conditions for type testing

5.1 All tests shall be type tests.

Unless otherwise specified in this part of BS 1363, the plugs shall be tested as delivered by the manufacturer or responsible vendor and under normal conditions of use, at an ambient temperature of $20\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ and after being conditioned at normal laboratory temperature and humidity levels for at least 4 days.

The plugs used for the tests shall be representative of normal production items in respect of all details which may affect the test results.

Non-rewirable plugs shall be supplied with an appropriate flexible cord which shall be at least 1 m long.

Plugs shall be deemed to comply if no specimen fails in the complete series of tests given in Table 1.

Table 1 — Schedule of **A3 tests **A3****

Sequence no.	Samples	Test	Clause number
1	3	Inspection, measurement, gauging and manipulation	5, 6, 7, 11.1, 9.1, 9.2, 9.4, 12.1, 12.2, 12.3, 12.4, 12.5, 12.9, (12.9.1, 12.9.2, 12.9.3 and 12.9.6 only), 12.13, 12.14, 12.15, 12.16, 19.2, 19.3, 19.4, 19.6, 21.8 A3 (except Annex C) A3
2	3	General	5, 9.3, 19.1, 12.12, 12.17.2, 12.17.3, 12.17.2
3	3		5, 14.2, 12.8, 19.5, 12.17.4
4	3		5, 14.1, 15.1, 16, A4 17, 12.18.1, 18, A4 20, 12.7, 10.1, 11.12, 12.10, 12.6, 12.11, 21.3
5	3*		5, A3 12.9.4.1 or 12.9.4.2 A3
6	3	Additional tests for rewirable plugs with clamp type (screwless) terminals	5, 14.1, 21.1
7	3		5, 11.10, 11.11
8a)	A3 9 A3	Additional tests for plugs with A4 nickel plated brass pins, A4 non-solid pins A3 and/or ISODs A3	5, 12.9.5
8b)	A3 3 A3	Additional tests for plugs fitted with ISOD	5, 12.9.4.3
9	3	Material	5, 22
10	3		5, 23.2, A3 8.2 (Annex C only) A3
11	3		5, 24, 21.3
A4 12	3	Positive break (switched plugs)	5, 12.18.2 A4
A4 13	3	Overloads	5, 14.1, 26 A4

NOTE 1 The order of tests given in sequence no. 1 is preferred but not mandatory except where required within the text of the appropriate clause.

NOTE 2 * denotes that an additional three samples will be required for plugs with non-solid pins.

If one specimen fails in a complete series of tests given in Table 1, then plugs of that type shall be deemed to have failed to comply with this part of BS 1363, unless the plug is shown to be not representative of normal production or design, in which case a further type test sample shall be submitted to the test or tests in that particular group. If there is no failure in this re-test then plugs of that type shall be deemed to comply with this part of BS 1363.

If more than one specimen fails in the complete series of tests given in Table 1 then plugs of that type shall be deemed not to comply with this part of BS 1363.

NOTE 1 For type testing, all tests have been included in the test schedule and should be performed in the specified order. References to carrying out specific tests in various clauses are not intended to indicate a sequence of testing different to that in the schedule and should not be conducted as separate additional tests.

NOTE 2 Where reference to BS 6500:2000 is made equivalent flexible cords to the latest version of that standard may be used.

5.2 All inspections and tests, of any one classification (see Clause 6), shall be carried out as specified in the clauses listed in Table 1 on the number of specimens in the sample column and in the order given.

5.3 Gauges in accordance with Figure 5 shall be considered to comply with the dimensional requirements if the results of 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.

6 Classification

Plugs shall be classified as follows:

- rewirable or non-rewirable;
- for normal use or rough use;
- fitted with screw or clamp type (screwless) terminals;
- for non-rewirable plugs for class II applications only, fitted with  un-terminated brass earth pin  or ISOD.

7 Marking and labelling

7.1 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) either the name, trade mark or identification mark of the manufacturer or responsible vendor, which may be duplicated on a removable fuse carrier;
 - b) the number of this British Standard, i.e. BS 1363¹⁾;
 - c) for rough-use plugs the number of this British Standard shall be followed by “/A”;
 - d) on rewirable plugs the terminals intended for the connection of the various conductors shall be identified by the symbols given in 7.5;
 - e) the words “FUSE” or “FUSED” or the symbol (as given in 7.5) on the external accessible surface of a plug;
 - f) all rewirable plugs shall be marked on the engagement surface with the rated current.
- All non-rewirable plugs shall be marked with the rated current of the fuse link fitted, which shall not exceed the value given in Table 2 for the appropriate size of flexible cord;
- g) plugs with clamp type (screwless) terminals shall be marked to show the length of conductor insulation to be removed before fitting the conductor in the terminal.

7.1.1 Compliance shall be checked by inspection and by rubbing 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, an initial boiling point of approximately 69 °C, and relative density of approximately 0.68. The marking shall remain legible. Markings produced by an engraving or moulding process shall be deemed to comply without test.

¹⁾ 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.  Text deleted 

7.2 Rewirable plugs shall have a removable tag or 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).

7.2.1 Compliance shall be checked by inspection.

7.3 Except where a plug fitted with a flexible cord is supplied direct to a manufacturer for incorporation in other equipment, the free end of such an assembly shall have a label attached which shall include the following:

- a) the statement: “The flexible cord of this plug must be connected to a piece of equipment before being plugged into a socket-outlet.”;
- b) the maximum rating, in amperes, of the equipment to which it may be fitted (as given in Table 2);
- c) the colour code of the cores of the flexible cord as follows:

“IMPORTANT. Wires in the mains lead are coloured in accordance with the following code:

Green/yellow	Earth (if any)
Blue	Neutral
Brown	Live”;

- d) if the plug is fitted with a 2-core flexible cord, the following statement:

“This lead must not be used with equipment requiring the protection of an earth continuity conductor.”

7.3.1 Compliance shall be checked by inspection.

7.4 Rewirable plugs shall be provided with adequate instructions for the safe connection of the appropriate flexible cords, including clear instructions for the removal of insulation from the conductors.

Plugs incorporating clamp type (screwless) terminals shall be supplied with information indicating that the plug is fitted with clamp type (screwless) terminals and containing clear instructions for the removal of insulation from the conductors and for the effective connection and disconnection of conductors.

7.4.1 Compliance shall be checked by inspection.

7.5 Symbols shall be as follows:

amperes	A
volts	V
line	L
neutral	N
*earth	$\oplus$ (preferred) or $\perp$
	The letter “E” may be used in addition to either of these symbols.
*fuse	$\equiv$

NOTE BS 6217 gives details of symbols marked *.

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

Flex cord nominal cross-sectional area mm ²	Rated current ^d A	Test current ±0.4 A A	Fuse rating A	Load for flexing test +2 %, −0 % kg	Cord grip tests	
					Load +2 % −0 % kg	Torque ^b N·m
0.5	3	3.5	3 (5) ^a	1	3	0.15
0.75	6	7	13	1	3	0.20
1 (0.75) ^c	10	11	13	2	3	0.25
1.25	13	14	13	2	6	0.30
1.5	13	14	13	2	6	0.35

^a The figure in brackets indicates the fuse rating when a non rewirable plug is used with certain types of equipment where the use of a 5 A fuse link is necessary because of the high instantaneous inrush current.

^b The recording of a measured value of torque in accordance with this table is considered to comply with this part of BS 1363 on condition that the uncertainty of measurement at not less than 95 % confidence level does not exceed ±10 %.

^c The figure in brackets indicates the flexible cord size which may be used for cord sets where non-rewirable plugs are used with a maximum flexible cord length of 2 m.

^d Non-rewirable plugs may have a rated current appropriate to a smaller cord size than that fitted. (e.g. a plug rated at 3 A may be fitted with an 0.75 mm cord). In such cases, load and torque parameters for testing shall relate to the size of cord fitted and the test current shall relate to the rated current of the plug.

8 Clearances, creepage distances and solid insulation

Plugs shall be constructed so that the clearances, creepage distances and solid insulation are adequate to withstand the electrical stresses taking into account the environmental influences that may occur. Clearances, creepage distances and solid insulation shall conform to the relevant ^{A3} requirements of 8.1, 8.2 and 8.3. The distance between lead wires in the pinch of a neon lamp with external resistor shall be a minimum of 1 mm.

^{A4} Text deleted ^{A4}

^{A4} Plugs complying with the requirements for basic insulation shall be deemed to meet the requirements of this clause. ^{A4} If the manufacturer declares an insulation level exceeding basic insulation then the plug shall be tested accordingly. ^{A3}

NOTE ^{A3} 1 ^{A3} The requirements and tests are based on BS EN 60664-1.

^{A3} NOTE 2 Product insulation consists of Basic Insulation and Protective Earthing as required by BS EN 61140 for Class I equipment. Mechanical strength equivalent to that which would be provided by Reinforced Insulation as listed in BS EN 61140 is achieved in BS 1363 products through the specific mechanical and material tests of BS 1363. ^{A3}

8.1 Clearances

Plugs energized directly from the low-voltage supply fall into Overvoltage Category III.

The clearances shall withstand the rated impulse voltage declared by the manufacturer considering the rated voltage and the Overvoltage Category as given in Annex D and the pollution degree declared by the manufacturer in accordance with Annex E.

For the measurements:

— all parts which may be removed without the use of a tool are removed and moveable parts which can be assembled in different orientations are placed in the most unfavourable position.

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

^{A3} Text deleted ^{A3}

8.1.1 Clearances for basic insulation

The clearances for basic insulation shall not be less than the values given in Table 8 except as described below.

Smaller A_3 unspecified A_3 clearances (except those values marked in Table 8 with Note b) may be used if the plug meets the impulse withstand voltage test of Annex F at the impulse voltage specified in Annex D 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.

Compliance shall be checked by inspection, and if necessary by measurement, or by the test of Annex F.

A_3 If clearance distances are to be measured, this shall be carried out in accordance with Annex B. A_3

8.1.2 Clearances for functional insulation

The clearances for functional insulation shall not be less than the values specified for basic insulation in 8.1.1.

Compliance shall be checked by inspection, and if necessary by measurement, or by the test of Annex F.

A_3 If clearance distances are to be measured, this shall be carried out in accordance with Annex B. A_3

8.1.3 Clearances for supplementary insulation

The clearances for supplementary insulation shall not be less than the values specified for basic insulation in 8.1.1.

Compliance shall be checked by inspection, and if necessary by measurement, or by the test of Annex F.

A_3 If clearance distances are to be measured, this shall be carried out in accordance with Annex B. A_3

Table 8 — Minimum clearances for basic insulation

Rated impulse withstand voltage (KV) ^a	Minimum clearances in air up to 2 000 m above sea level 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
6.0	5.5

^a See Annex D. 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 plug;
- for other basic insulation: the highest impulse voltage that can occur in the circuit.

^b Minimum clearance values are based on BS EN 60664-1.

8.1.4 Clearances for reinforced insulation

The clearances for reinforced insulation shall be not less than the values specified for basic insulation in 8.1.1 but using the next higher step for rated impulse withstand voltage given in Table 8.

A_3 NOTE The requirement is not applicable to the sleeves of the plug pins. A_3

Compliance shall be checked by inspection and measurement, A_3 or by the test of Annex F. A_3

A_4 8.1.5 Contact gap

The minimum contact gap shall be 1.2 mm in the open position.

Compliance shall be checked by measurement. A_4

8.2 Creepage distances

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

For the measurements:

- all parts which may be removed without the use of a tool are removed and movable parts which can be assembled in different orientations are placed in the most unfavourable position.

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

NOTE 2 A creepage distance cannot be less than the associated clearance.

Creepage distances are measured in accordance with Annex B.

The relationship between material group and between comparative tracking index (CTI) values and proof tracking index (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	$100 \leq \text{CTI/PTI} < 175$

The CTI or PTI values are determined in accordance with Annex C.

NOTE 3 For glass, ceramics and other inorganic materials which do not track, creepage distances need not be greater than their associated clearance.

8.2.1 Creepage distances for basic insulation

The creepage distances for basic insulation shall not be less than the values given in Table 9.

Compliance shall be checked by measurement.

Table 9 — Minimum creepage distances for basic insulation

Rated Voltage ^a V (r.m.s.)	Pollution Degree 2 ^b			Pollution Degree 3 ^b		
up to and including	Material group			Material group		
—	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 Table 3a and Table 3b of BS EN 60664-1 based on the rated voltage.
^b Details of pollution degrees are given in Annex E.

8.2.2 Creepage distances for functional insulation

The creepage distances for functional insulation shall not be less than the values specified for basic insulation in 8.2.1.

Compliance shall be checked by measurement.

8.2.3 Creepage distances for supplementary insulation

The creepage distances for supplementary insulation shall not be less than the values specified for basic insulation in 8.2.1.

Compliance shall be checked by measurement.

8.2.4 Creepage distances for reinforced insulation

The creepage distances for reinforced insulation shall not be less than those derived from twice the distance specified for basic insulation in Table 9.

A3 NOTE The requirement is not applicable to the sleeves of the plug pins. **A3**

Compliance shall be checked by measurement.

8.3 Solid insulation

Solid insulation for basic, **A4** functional, **A4** supplementary and reinforced insulation shall be capable of withstanding electrical stresses which can occur in normal use.

No minimum thickness is specified for solid insulation.

8.3.1 Compliance shall be checked by tests in accordance with **15.1.3** using the values given in Table 10.

Text deleted

Table 10 — Withstand voltages for insulation types

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

A3

9 Accessibility of live parts

9.1 Live parts of plugs shall not be accessible when the plugs are wired as in normal use and in full engagement in a corresponding socket-outlet.

Removal of detachable fuse carriers shall not result in live parts becoming accessible when the plug is in full engagement with the socket outlet or the socket outlet portion of an adaptor.

9.1.1 Compliance shall be checked by the application of test probe 12 of BS EN 61032:1998 applied with a force of 5_{-1}^0 N with rewirable plugs fitted with a 2-core flexible cord as given in Table 24 of BS 6500:2000 and non-rewirable plugs as supplied. Detachable fuse carriers shall be removed before this test is undertaken.

9.2 Plugs shall be designed and constructed so as to protect the user against accidental contact with live parts during insertion or withdrawal of plugs.

9.2.1 Compliance shall be proved by satisfying the dimensional and gauging requirements of this Part of BS 1363.

9.3 Resilient covers of plugs shall be so designed and constructed that when assembled and wired 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 given in Clause 8.

9.3.1 Compliance shall be checked by the following test (an example of a suitable apparatus is shown in Figure 2).

The design of the apparatus shall be such that a steady force of 240_{-10}^0 N can be applied to those places where the possibility of a failure exists, the force being applied through a metal test pressure block as shown in Figure 2.

Each sample shall be subjected to the force at each chosen place in turn. During each application of force, a test voltage of $2\,000\text{ V} \pm 60\text{ V}$ 50 Hz of substantially sinusoidal waveform is applied for 60_{-0}^{+5} s between all live parts bonded together and the earthed test pressure block.

During the test no flashover or breakdown shall occur.

After the test it shall not be possible to touch live parts with test 11 of BS EN 61032:1998 applied with a force of 30_{-2}^0 N.

9.4 Where a plug is supplied fitted with a flexible cord, the free end of such an assembly shall be encapsulated in insulating material.

NOTE This does not apply to assemblies supplied to equipment manufacturers for incorporation into their equipment.

9.4.1 Compliance shall be checked by inspection.

10 Provision for earthing

10.1 All accessible metal parts of plugs shall be in effective electrical contact with the earthing plug pin, except that metal parts on, or screws in or through, non-conducting material, and separated by such material from current-carrying parts in such a way that in normal use they cannot become live, need not be in effective electrical contact with the earthing pin.

The earth pin shall be provided with a terminal or termination such as to provide a joint of low resistance with the earth conductor of a flexible cord.

NOTE Metal parts having an accessible surface coating of lacquer or enamel are accessible metal parts within the meaning of this requirement.

10.1.1 Compliance shall be checked by inspection and the following:

- a) for metal parts insulated from live parts, by the test described in **15.1.3**;
- b) for metal parts connected to an earthing terminal or earthing plug pin, by the following test.
A current of $25\text{ A} \pm 0.75\text{ A}$, derived from an a.c. source having a no-load voltage not exceeding 12 V, is passed for 60^{+5}_0 s between the remote end of the protective conductor of a 3-core flexible cord (cut to a length of $150\text{ mm} \pm 5\text{ mm}$ measured from the nearest edge of the earthing pin) and the remote end of the earthing plug pin and any accessible metal part intended to be earthed, taking account of the following:
 - 1) for non-rewirable plugs, the manufacturer's connection is tested as supplied, with the flexible cord cut to a length of $150\text{ mm} \pm 5\text{ mm}$ measured from the nearest edge of the earthing pin, precoiled flexible cords being extended before measurement.
 - 2) for rewirable plugs, 1.25 mm^2 flexible cord complying with Table 27 of BS 6500:2000 shall be used:
 - i) for screw type terminals the clamping screw shall be tightened with a torque equal to two-thirds of the appropriate value given in Table 3a;
 - ii) for clamp-type (screwless) terminals the connection shall be made in accordance with the manufacturer's instructions.

The resistance between the earthing terminal or termination and any other nominated metal part shall not exceed $0.05\text{ }\Omega$.

Table 3a — Torque values for screws and nuts

Declared diameter of screw thread mm	Torque		
	For metal screws (see Note 1) N·m	For other metal screws and nuts N·m	For screws of insulating material N·m
Up to and including 2.8	0.2	0.4	0.4
Over 2.8, up to and including 3	0.25	0.5	0.5
Over 3, up to and including 3.2	0.3	0.6	0.6
Over 3.2, up to and including 3.6	0.4	0.8	0.6
Over 3.6, up to and including 4.1	0.7	1.2	0.6
Over 4.1, up to and including 4.7	0.8	1.8	0.9
Over 4.7, up to and including 5.3	0.8	2.0	1.0
Over 5.3, up to and including 6	—	2.5	1.25

NOTE 1 This column applies to metal screws without heads if the screw when tightened does not protrude from the hole, and to other metal screws which cannot be tightened by means of a screwdriver with a blade wider than the diameter of the screw.

NOTE 2 The recording of a measured value given in this table is considered to comply with this part of BS 1363 on condition that the uncertainty of measurement at not less than 95 % confidence level does not exceed $\pm 10\%$.

11 Terminals and terminations

11.1 Terminals and terminations shall provide for effective clamping and securing of conductors connected to them, so that efficient electrical connection is made.

11.1.1 Compliance shall be checked in accordance with **11.2** to **11.9**.

11.2 Rewirable plugs shall be provided with terminals as defined in **3.8** or **3.9**.

11.2.1 Compliance shall be checked by inspection.

11.3 Non-rewirable plugs shall be provided with soldered, welded, crimped or similar terminations; for all these methods of termination, not more than one strand of a 0.5 mm² conductor or two strands of other sized conductors shall be fractured during connection.

Screwed and “snap-on” terminals shall not be used. Crimped connections shall not be made on to pre-soldered flexible cords unless the soldered area is entirely outside the crimp.

 Text deleted 

A terminal or termination shall not be provided on an ISOD.

11.3.1 Compliance shall be checked by inspection and measurement.

11.4 Terminals in rewirable plugs shall permit the connection, without special preparation, of flexible cords having nominal conductor cross-sectional areas of 0.5 mm² to 1.5 mm².

11.4.1 Compliance shall be checked by inspection and fitting the appropriate conductors.

11.5 Where pillar terminals are used they shall have clamping screws of sufficient length to extend to the far side of the conductor hole. The end of the screw shall be slightly rounded so as to minimize damage to the conductors. The sizes of the conductor hole and the clamping screw shall be such that the clearance between each side of the major diameter of the clamping screw and the conductor hole does not exceed 0.4 mm.

11.5.1 Compliance shall be checked by inspection and measurement.

11.6 Terminal screws shall have a declared outside diameter of not less than 3 mm or be not smaller than 6 B.A.

Thread cutting and/or thread forming screws shall not be used.

11.6.1 Compliance shall be checked by inspection and measurement.

11.7 Insulating barriers in rewirable plugs shall be an integral part, so arranged that with the cord anchorage rendered inoperative and the earth or line conductors becoming detached from their respective terminals, there is negligible risk of the following:

- a) the earth conductor coming into contact with parts at line potential;
- b) the line conductor coming into contact with the line pin assembly.

11.7.1 Compliance shall be checked by inspection and by the following test.

The plug is wired as in normal use with a 0.5 mm² 3-core flexible cord as given in Table 27 of BS 6500:2000 in accordance with the manufacturer's instructions. All terminal screws or nuts are tightened to the appropriate torque given in Table 3a.

A continuity indicating circuit operating at not less than 40 V is connected between the conductors and the other parts nominated. All terminal screws are then loosened and the cord anchorage rendered inoperative and the cover of the plug refitted. For plugs fitted with clamp type (screwless) terminals the conductor clamp shall be rendered inoperative. The flexible cord is then withdrawn from the plug at a rate not exceeding 50 mm/min, the direction of the pull being varied, until the earth core is pulled free of the plug. The test is made six times in all. For each new test a fresh section of the cord is fitted and the flexible cord rotated through approximately 60° in the plane perpendicular to its major axis in a clockwise direction before fitting unless the design is such that this is not practicable.

There shall be no contact between parts at line potential and the earth conductor or between the line conductor and line pin assembly, thus bypassing the fuse link.

11.8 Rewirable plugs shall be designed so that they can be wired in a manner which prevents strain to the earth connection before the line and/or neutral connection when the cord anchorage is rendered inoperative.

11.8.1 Compliance shall be checked by inspection and manipulation using a plug wired in accordance with the manufacturer's instructions.

11.9 In rewirable plugs terminals shall be so located or shielded that should a strand of a flexible conductor escape when the conductors are fitted, there is negligible risk of accidental connection between live parts and accessible external surfaces, or of a stray strand bypassing the fuse link.

11.9.1 Compliance shall be checked by inspection, and by the following test. Compliance shall be checked by inspection, and by the following test.

A length of insulation in accordance with the manufacturer's instructions is removed from the end of a flexible conductor having a nominal cross-sectional area of 1.5 mm^2 . One strand of the flexible conductor is left free and the other strands are fully inserted into and clamped in the terminal. The free strand is bent, without tearing the insulation back, in every possible direction, but without making sharp bends round barriers unless a bend is reproduced by the replacement of the cover.

The free strand of a conductor connected to a live terminal, shall not:

- a) touch any metal part so as to by-pass the fuse link;
- b) touch any metal part which is accessible or is connected to an accessible metal part;
- c) reduce creepage distance and clearance to accessible surfaces to less than 1.3 mm.

The free strand of a conductor connected to an earthing terminal shall not touch any live parts.

11.10 Clamp type (screwless) terminals shall be so designed that they make electrical contact to the specified conductors, between metal surfaces with sufficient pressure, and without additional means to maintain the clamping pressure. They shall not cause undue damage to the conductors.

NOTE Conductors are considered to be unduly damaged if they show deep or sharp indentations.

It shall be clear how the connection and disconnection of the conductors is intended to be effected.

The intended disconnection of a conductor shall require an operation to unlatch the clamp manually prior to removing the conductor.

11.10.1 Compliance shall be checked by the following.

- a) Inspection of three sample plugs.
- b) The following test is carried out on each terminal of the three sets of L, N and E terminals supplied in the test sample. For the purposes of this test, terminals are removed from the test sample or alternatively supplied separately.

Tests are carried out on each line, neutral and earth terminal separately with individual flexible conductors, first with conductors having the largest cross-sectional area, and then with conductors having the smallest cross-sectional area, as specified in **11.4**.

Conductors are connected and disconnected five times, on each terminal, new conductors being used each time, except for the fifth time, when the conductors used for the fourth connection are reconnected at the same place.

For each insertion, the conductors are inserted so that adequate connection is obvious. After insertion, the conductor is subjected to a pull of $30 \pm 2 \text{ N}$. The pull is applied without jerks for $60 \pm 5 \text{ s}$, in a direction equivalent to that in which the conductor lies when the terminal is mounted in the plug.

During the application of the pull, the conductor shall not come out of the terminal. After these tests neither the terminals nor the clamping means shall have deteriorated in a manner impairing their further use and not more than one strand of a 0.5 mm^2 conductor or two strands of other sized conductors shall be fractured.

11.11 Clamp type (screwless) terminals shall be so constructed that incorrect fitting of the conductor is prevented.

11.11.1 Compliance shall be checked by inspection.

11.12 Clamp type (screwless) terminals shall be adequately located in the plug when assembled for normal use.

11.12.1 Compliance shall be checked by inspection, and by the mechanical strength test given in **20.1.3**.

12 Construction of plugs

12.1 The disposition of the plug pins (including ISODs where applicable) shall be as shown in Figure 4a).

12.1.1 Compliance shall be checked by inspection.

12.2 The outline of the plug shall not exceed the dimensions shown in Figure 4a) for a distance of not less than 6.35 mm from the engagement surface and within these dimensions there shall be no axial projection from the engagement surface of the plug, except that at a distance more than 6.35 mm from the engagement surface the outline of the plug may exceed the dimensions shown in Figure 4a) in the plane of the earth pin and in the plane of the cord entry to facilitate the removal of the plug from the socket. Pin disposition, length and body outline shall be checked by use of the gauge shown in Figure 5 in accordance with the following test. Pin and sleeve dimensions shall be checked by measurement and shall comply with Figure 4a), except for non-solid pins and ISOD where the chamfers shall generally fall within the profiles of Figure 4a) and their adequacy shall be checked by the tests of **12.9.5**. ISODs shall be of generally rectangular cross-section. 'T' sections are not permitted although castellated cross-sections are permitted provided their dimensions comply with Figure 4b) and all the other requirements of the standard are met.

The maintenance of these dimensions shall not rely on the terminal screws.

Plugs fitted with an ISOD shall comply with all the dimensions specified in Figure 4a) with the exception of the ISOD width which shall be 4.05 mm max and 3.90 mm min and its height which shall be 8.05 mm max and 7.75 mm min.

12.2.1 Compliance shall be checked by inspection, measurement and by the use of the gauge shown in Figure 5.

For the gauging test rewirable plugs shall be fitted with a 3-core 1.25 mm² flexible cord as given in Table 27 of BS 6500:2000. Non-rewirable plugs shall be tested as delivered.

With the gauge in an approximately vertical position and the engagement surfaces of the plug and the gauge parallel to each other, the line and neutral pins shall be entered into the gauge for a distance not exceeding 2 mm. The plug shall then enter the gauge fully when a force of 10 N or less is applied to the centre of the plug at right angles to the engagement surface and without any additional force being applied to the pins to bring them into alignment.

In the case of plugs with ISODs, due to the flexibility of plastic materials some additional alignment of the ISOD is allowed when inserting into the Figure 5 gauge. Where alignment cannot be maintained the test given in BS 1363-2:1995, **13.8**, shall be applied and the maximum withdrawal force from a socket-outlet conforming to BS 1363-2 shall not exceed 36 N.

12.3 No part of a line or neutral pin shall be less than 9.5 mm from the periphery of the plug measured along the engagement surface.

12.3.1 Compliance shall be checked by measurement.

12.4 A fuse link complying with BS 1362:1973 shall be provided within the body of the plug and the fuse link shall be mounted in appropriate contacts only between the line terminal or termination and the corresponding plug pin in such a way that it cannot be displaced when the plug is in use. The design shall be such that the fuse link cannot be left in inadequate contact when the plug cover, fuse-cover or the fuse-carrier is replaced and firmly secured in position.

A manufacturer of plugs may supply plugs in part assembled form, with or without an appropriate fuse, direct to a manufacturer for incorporation in other equipment, provided that when assembled the complete plug complies with this part of BS 1363.

It shall be impossible to replace the fuse link in a plug unless the plug is completely withdrawn from the socket-outlet.

For non-rewirable plugs the current rating of the fuse link shall not exceed the value given in Table 2 for the appropriate size of the flexible cord.

12.4.1 Compliance shall be checked by inspection.

12.5 In non-rewirable plugs, where the fuse link is retained by means of a fuse carrier, this device shall be either:

- a) non-detachable during normal replacement of the fuse link; or
- b) readily identifiable in relation to its plug by means of marking.

12.5.1 Compliance shall be checked by inspection.

12.6 The base and cover of non-rewirable plugs shall be permanently attached to each other, such that the flexible cord cannot be separated without making the plug permanently useless, and the plug cannot be opened by hand or by using a general purpose tool, for example a screwdriver used as such. A plug shall be considered to be permanently useless when, for reassembling, the plug parts or materials other than the original have to be used.

The base and cover of rewirable plugs shall be firmly secured to each other. It shall not be possible to remove the cover unless the plug is completely withdrawn from the socket-outlet. Any fixing screws shall be captive.

12.6.1 Compliance shall be checked by inspection and by the following tests as applicable.

- a) Each plug cover fixing screw has a pull of 60_{-2}^{+5} N exerted upon it for 60_{-0}^{+5} s whilst the surface temperature of the product is $70^{\circ}\text{C} \pm 5^{\circ}\text{C}$. The test is carried out using apparatus similar to that shown in Figure 6 and for the test the plug cover and apparatus are placed in an oven until they reach the required temperature.

At the end of the test any screw thread shall be serviceable and any insert shall not have moved to such an extent that correct assembly of the plug is prevented.

- b) For rewirable plugs having covers fixed by means other than screws and for non-moulded-on, non-rewirable plugs, all the plug pins are clamped together in a suitable jig and subjected to a pull of 60_{-2}^{+5} N whilst suspending the cover by means of a "nest" to suit the plug cover profile. The test is carried out in an oven at a temperature of $70^{\circ}\text{C} \pm 5^{\circ}\text{C}$ and the pull applied for 60_{-0}^{+5} s after the temperature has been attained.

After the test it shall not be possible to touch live parts with the test pin shown in Figure 1 applied with a force of 5_{-1}^{+0} N.

- c) Non moulded on, non-rewirable plugs are tested with the flexible cord supplied. The plug pins are clamped in the vertical position using a suitable jig with the plug pins uppermost. The plug lead fitted shall A3 be suitably fitted with a cord totalling 1 m in length in such a way that any joint has negligible effect A3 and a weight of $(3^{+0.06}_{-0})$ kg fixed to the end. With the weight initially held (0.5 ± 0.05) m from the end of the cord anchorage, and at the same height. The weight is allowed to fall A3 freely A3 and this test shall be carried out 5 times.

After this test the plug cover shall be in place and show no damage. A4 If the cord becomes detached during this test but the plug cover remains in place and shows no damage the plug shall be deemed to have passed this test. A4

Compliance shall be checked by inspection.

12.7 Plugs shall be so designed and constructed that they cannot readily be deformed to allow access to live parts.

12.7.1 Compliance shall be checked by inspection and by the following test.

Immediately after the test described in Clause 16, test probe 11 of BS EN 61032:1998 is applied to the accessible surface of the plug with a force of 30_{-5}^{+0} N. It shall not be possible to touch live parts.

12.8 For non-rewirable plugs means shall be provided to prevent loose strands of a conductor or current-carrying parts from reducing the minimum insulation thickness requirements between such parts and all accessible external surfaces of the plug.

12.8.1 Compliance shall be checked by inspection and the test described in **15.2**.

12.9 Materials other than brass ~~A4~~ or nickel plated brass ~~A4~~ shall not be used in the construction of Line and Neutral plug pins except for sleeves of pins as specified in **12.16**. Plug pins and ISODs shall comply with **12.9.1**. Non-solid pins ~~A3~~ *Text deleted* ~~A3~~ shall comply with **12.9.2**.

12.9.1 All exposed surfaces of plug pins shall be smooth and free from burrs or sharp edges and other irregularities which could cause damage or excessive wear to corresponding socket contacts or shutters.

12.9.1.1 Compliance shall be checked by inspection.

12.9.2 Those surfaces of the non-solid plug pins which are visible when the plug is correctly assembled shall be free of apertures.

12.9.2.1 Compliance shall be checked by inspection.

12.9.3 All seams and joints of non-solid plug pins shall be closed over their entire length.

12.9.3.1 Compliance shall be checked by inspection and in case of doubt by the following test.

Push a probe of 0.2 mm diameter of steel complying with Table 1 of BS 5216:1991 into all seams and joints. Check that the test probe does not enter into any seam or joint to a depth greater than the thickness of the material from which the plug pin is formed.

12.9.4 Plug pins and ISODs shall have adequate strength to withstand the stresses of normal use.

12.9.4.1 For solid pins ~~A3~~ *Text deleted* ~~A3~~, compliance shall be checked by the following test.

Position a pin on the fixed anvil of the apparatus, as shown in Figure 32, with its contact surfaces in the horizontal plane. Apply a force of $1\,100\,^{+0}_{-10}$ N to the movable anvil by any convenient method such that the pin is strained at a rate not exceeding 10 mm/min.

The test shall be made separately on the line, neutral and earth pins applying the load perpendicular to the major axis surfaces of the pins.

After this test the plug shall fit the gauge to Figure 5 when used in the manner described in **12.2.1**.

12.9.4.2 For non-solid pins, compliance shall be checked by the following tests.

a) Position a pin on the fixed anvil of the apparatus, as shown in Figure 32, with its contact surfaces in the horizontal plane. Bring the movable anvil to rest against the upper surface of the pin. Apply a force of $800\,^{+0}_{-10}$ N to the movable anvil 50 times without impact.

The test shall be made separately on the line, neutral and earth pins applying the load perpendicular to the major axis surfaces of the pins. If there is a joint or seam in one of the major axis surfaces of a pin then the test shall be made twice. The seam or joint shall face the moving anvil for the first test and shall face the fixed anvil for the second test.

After the test the pins shall comply with **12.9.2** and **12.9.3** and the plug shall fit gauge shown in Figure 5 when used in the manner described in **12.2.1**.

b) Separate specimens shall be used to check in accordance with the following test.

Position a pin on the fixed anvil of the apparatus, as shown in Figure 32, with the widest surface in the horizontal plane. Bring the movable anvil to rest against the upper surface of the pin. This quiescent position shall be taken as the datum point. Apply a force to the movable anvil by any convenient method such that the pin is strained at a rate not exceeding 10 mm/min. Measure the applied force when the movement of the anvil from the datum point reaches $1.5\,^{+0}_{-0.1}$ mm. The test shall be made separately on the line, neutral and earth pins applying the load perpendicular to the major axis surfaces of the pins. If there is a joint or seam in one of the major axis surfaces of a pin then the test shall be made twice. The seam or joint shall face the moving anvil for the first test and shall face the fixed anvil for the second test. The force shall be not less than 1 100 N.

12.9.4.3 For ISODs, compliance shall be checked by the following test.

Position the ISOD on the fixed anvil of the apparatus as shown in Figure 32 with the widest surface in the horizontal plane. Bring the moveable anvil to rest against the upper surface of the ISOD. The quiescent position shall be taken as the datum point. Apply a force to the moveable anvil by any convenient method such that the ISOD is strained at a rate of 10 ± 2 mm/min.