



BSI Standards Publication

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

Part 3: Adaptors – Specification

Contents

	Page
Foreword	IV
1 Scope	1
2 Normative references	1
3 Terms and definitions	3
4 Conditions of use	7
5 General	7
6 General conditions for type testing	7
<i>Table 1 — Schedule of tests</i>	8
<i>Figure 5 — Gauge for plug pins</i>	9
<i>Figure 11 — GO gauge for socket-outlet</i>	10
<i>Figure 12 — Contact test gauge</i>	11
<i>Figure 14 — Non-contact test gauge</i>	12
<i>Figure 16a) — Withdrawal pull gauges for effectiveness of contact: Gauge for earthing socket contact</i>	13
7 Classification and rating	13
7.1 Classifications	13
7.2 Rating	14
8 Marking and labelling	14
<i>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</i>	15
9 Clearances, creepage distances and solid insulation	16
9.1 Clearances	17
<i>Table 3 — Minimum clearances for basic insulation</i>	18
9.2 Creepage distances	18
<i>Table 4 — Minimum creepage distances (mm) for basic insulation</i>	19
9.3 Solid insulation	19
<i>Table 5 — Withstand voltages for insulation types</i>	19
9.4 Requirements for printed wiring boards and equivalent construction	20
10 Accessibility of live parts	20
<i>Figure 1 — Test pin</i>	20
<i>Figure 2a) — Apparatus for mechanical strength test on resilient covers</i>	21
<i>Figure 2b) — Hardwood block for Figure 2a)</i>	22
11 Provision for earthing	23
12 Terminals and terminations of intermediate adaptors and adaptor plugs	24
<i>Table 6 — Torque values for screws and nuts</i>	25
13 Construction of adaptors (plug portion)	26
<i>Figure 4a) — Dimensions and disposition of pins</i>	26
<i>Figure 4b) — Concave shrinkage allowance for ISODs</i>	29
<i>Figure 6 — Apparatus for testing plug cover fixing screws</i>	32
<i>Figure 32a) — Apparatus for tests on adaptor pins</i>	34
<i>Figure 32b) — Apparatus for tests on adaptor plug pins</i>	34
<i>Figure 33 — Apparatus for torsion test on pins</i>	37
<i>Figure 7 — Mounting plate</i>	38
<i>Figure 8 — Plug pin deflection test apparatus for resilient adaptors</i>	39
<i>Figure 9 — Apparatus for abrasion test on insulating sleeves of plug pins</i>	41
<i>Figure 10 — Apparatus for pressure test at high temperature</i>	42
14 Construction of adaptors (adaptor socket-outlet portion)	43
<i>Figure 3 — Disposition of socket contacts</i>	43

	<i>Figure 13 — Test apparatus and circuit for use with contact and non contact gauges</i>	44
	<i>Figure 16b) — Withdrawal pull gauges for effectiveness of contact: Gauge for line and neutral current carrying socket contacts</i>	46
	<i>Figure 35 — Simulated plug and cable devices</i>	48
	<i>Figure 36 — Apparatus for calibration of turning moment of simulated plug</i>	50
	<i>Figure 37a) — Turning moment apparatus: Front view and side view</i>	50
	<i>Figure 37b) — Turning moment apparatus: Top view and pictorial overview</i>	51
	<i>Table 7 — Actuator test force</i>	53
15	Resistance to ageing and to humidity	53
15.1	Resistance to ageing	53
15.2	Resistance to humidity	53
16	Insulation resistance and electric strength	54
17	Temperature rise	55
	<i>Figure 34 — Test plug</i>	55
	<i>Table 8 — Permitted temperature rises</i>	57
	<i>Figure 17a) — Test apparatus for temperature rise test</i>	58
	<i>Figure 17b) — Dummy front plate for temperature rise test</i>	60
18	Breaking capacity of adaptors	61
19	Normal operation of adaptors	61
20	Connection of flexible cables and cable anchorage in intermediate adaptors and adaptor plugs	62
	<i>Figure 18 — Apparatus for flexing test</i>	65
	<i>Table 9 — Connection of flexible cables</i>	66
21	Mechanical strength	66
	<i>Figure 19 — Solid link for test on fuse clips</i>	66
	<i>Figure 38 — Solid links for test on fuse clips</i>	67
	<i>Figure 21a) — Pendulum impact test: General view of apparatus</i>	68
	<i>Figure 21b) — Pendulum impact test: Constructional details of striking elements</i>	69
	<i>Figure 21c) — Pendulum impact test: Constructional details of mounting support for test samples</i>	70
	<i>Figure 20 — Tumbling barrel</i>	71
22	Screws, current carrying parts and connections	72
23	Resistance to heat	73
	<i>Figure 23 — Apparatus for pressure test</i>	74
24	Resistance to abnormal heat and fire	75
24.1	General	75
24.2	Glow wire test	75
	<i>Table 10 — Application of glow wire test</i>	75
25	Resistance to excessive residual stresses and to rusting	76
26	(Not used)	77
27	Overload tests	77
Annex A	(normative) Requirements for incorporated electronic components	79
Annex B	(normative) Pollution degree	84
Annex C	(normative) Relation between rated impulse withstand voltage, rated voltage and Overvoltage Category	85
	<i>Table C.1 — Rated impulse withstand voltage for adaptors energized directly from the low voltage mains</i>	85
Annex D	(normative) Determination of the Comparative Tracking Index and Proof Tracking Index	86
Annex E	(normative) Impulse voltage test	86
	<i>Table E.1 — Test voltages for verifying clearances at sea level</i>	87

Annex F	(normative) Measurement of clearances and creepage distances	87
	<i>Table F.1 — Minimum values of width, X</i>	87
	<i>Figure F.1 — Example 1</i>	88
	<i>Figure F.2 — Example 2</i>	88
	<i>Figure F.3 — Example 3</i>	88
	<i>Figure F.4 — Example 4</i>	89
	<i>Figure F.5 — Example 5</i>	89
	<i>Figure F.6 — Example 6</i>	89
	<i>Figure F.7 — Example 7</i>	90
	<i>Figure F.8 — Example 8</i>	90
	<i>Figure F.9 — Example 9</i>	90
	<i>Figure F.10 — Example 10</i>	91
	<i>Figure F.11 — Example 11</i>	91
Annex G	(normative) Test plug for temperature rise test	91
	<i>Figure 30 — Test plug for temperature rise</i>	92
Annex H	(normative) The construction and calibration of a calibrated link	93
	<i>Figure 28 — Calibrated link</i>	94
	<i>Figure 29 — Calibration jig for calibrated link</i>	96
Annex I	(informative) Annex identification migration from 2016 edition to 2023 edition	97
	<i>Table I.1 — BS 1363 annex identification migration from 2016 to 2023</i>	98
	Bibliography	100

Summary of pages

This document comprises a front cover, an inside front cover, pages I to VI, pages 1 to 100, 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 30 June 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 1363-3:2016+A1:2018](#) 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;
- the requirements governing voltage and current ratings of adaptors incorporating electronic components have changed;
- new adaptor requirements have been added for the maximum number of socket-outlets on the same plane;
- Annex requirements for incorporated electronic components have been modified, specifically, USB circuits intended for charging portable devices with the addition of the abnormal condition.

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

[Annex I](#) 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 A, 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”).

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Compliance 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 for adaptors having insulating sleeves on the line and neutral plug pins and suitable for use with socket-outlets conforming to BS 1363-2:2023, with particular reference to safety in normal use. Adaptors specified in this part of [BS 1363](#) are intended for household, commercial and light industrial purposes. The adaptors 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. and frequencies from 50 Hz to 60 Hz. Adaptors incorporating electronic components detailed in [Annex A](#) are included within this part of [BS 1363](#).

This standard also applies to shaver adaptors which have the 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 1363-2:2023.

Adaptors conforming to this standard are shuttered and therefore do not require the use of additional means to shield the current carrying contacts when no plug is present in the adaptor socket-outlets.

Assemblies comprising a plug and one or more portable socket-outlets connected together by a flexible cable are not considered to be adaptors according to this part of [BS 1363](#).

An adaptor is mechanical by nature of construction. The product is therefore immune from electromagnetic interference.

An adaptor that does not incorporate electronic devices does not emit intolerable electromagnetic interference, since significant electromagnetic disturbances are only generated during insertion and withdrawal which are not continuous.

This British Standard does not cover devices within the scope of the following standards:

- a) BS EN IEC 62368 series (direct plug-in devices);
- b) BS EN IEC 60730 series; or
- c) [BS 8546](#).

NOTE In order to maintain safety and interchangeability with plugs and socket-outlets, it is necessary that these products conform to the requirements of [Clause 10](#), [Clause 13](#) and [Clause 14](#), however their body outline need not be limited at a distance of 6.35 mm from the plug engagement surface.

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 546:1950](#), *Specification – Two-pole and earthing-pin plugs, socket-outlets and socket-outlet adaptors*

BS 646:1958+A2:2013, *Specification for cartridge fuse-links (rated up to 5 amperes) for a.c. and d.c. service*

[BS 1362:1973+A3:2021](#), *General purpose fuse links for domestic and similar purposes (primarily for use in plugs) – Specification*

BS 1363-1:2023, *13 A plugs, socket-outlets, adaptors and connection units – Part 1: Rewirable and non-rewirable 13 A fused plugs – Specification*

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

BS 1363-2:2023, *13 A plugs, socket-outlets, adaptors and connection units – Part 2: 13 A switched and unswitched socket-outlets – Specification*

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

BS 4573:1970+A5:2016, *Specification for 2-pin reversible plugs and shaver socket-outlets*

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

[BS 6004:2012+A1:2020](#), *Electric cables – PVC insulated and PVC sheathed cables for voltages up to and including 300/500 V, for electric power and lighting*

[BS EN 1652](#), *Copper and copper alloys – Plate, sheet, strip and circles for general purposes*

[BS EN 50075:1991](#), *Specification for flat non-wirable two-pole plugs 2.5 A 250 V, with cord, for the connection of class II-equipment for household and similar purposes*

[BS EN 50525-2-11:2011](#), *Electric cables – Low voltage energy cables of rated voltages up to and including 450/750V (U_o/U) – Part 2-11: Cables for general applications – Flexible cables with thermoplastic PVC insulation*

[BS EN 50525-2-21:2011](#), *Electric cables – Low voltage energy cables of rated voltages up to and including 450/750 V (U_o/U) – Part 2-21: Cables for general applications – Flexible cables with crosslinked elastomeric insulation*

[BS EN 50525-2-22:2011](#), *Electric cables – Low voltage energy cables of rated voltages up to and including 450/750 V (U_o/U) – Part 2-22: Cables for general applications – High flexibility braided cables with crosslinked elastomeric insulation*

[BS EN 50525-2-71:2011](#), *Electric cables – Low voltage energy cables of rated voltages up to and including 450/750 V (U_o/U) – Part 2-71: Cables for general applications – Flat tinsel cables (cords) with thermoplastic PVC insulation*

[BS EN 60664-3](#), *Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution (IEC 60664-3:2016)*

[BS EN 60664-5](#), *Insulation coordination for equipment within low-voltage systems – Part 5: Comprehensive method for determining clearances and creepage distances equal to or less than 2 mm*

[BS EN 60669-2-1](#), *Switches for household and similar fixed electrical installations – Part 2-1: Particular requirements – Electronic switches*

[BS EN 60695-10-2:2014](#), *Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test method*

[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 61558-2-6](#), *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V – Part 2-6: Particular requirements and tests for safety isolating transformers and power supply units incorporating safety isolating transformers*

[BS EN 61558-2-16](#), *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V – Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units*

[BS EN 61643-311](#), *Components for low-voltage surge protective devices – Part 311: Performance requirements and test circuits for gas discharge tubes (GDT)*

[BS EN 61643-321](#), *Low voltage surge protective devices – Part 321: Specifications for avalanche breakdown diode (ABD)*

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

[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 IEC 61000-6-1, *Electromagnetic compatibility (EMC) – Generic standards – Part 6-1: Immunity standard for residential, commercial and light-industrial environments*

[BS EN IEC 61000-6-3](#), *Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission standard for equipment in residential environments*

[BS EN IEC 61051-2:2021](#), *Varistors for use in electronic equipment – Part 2: Sectional specification for surge suppression varistors*

[BS EN IEC 61643-331](#), *Components for low-voltage surge protection – Part 331: Performance requirements and test methods for metal oxide varistors (MOV)*

[BS EN IEC 62368-1](#), *Audio/video, information and communication technology equipment – Part 1: Safety requirements*

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

IEC/TR 60083:2015, *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 an adaptor

surface that can be touched by test probe B specified in [BS EN 61032:1998](#) when the adaptor is in full engagement with the corresponding socket-outlet without any plugs being in engagement with the adaptor

3.2 actuating member

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

3.3 adaptor

portable accessory having plug pins, intended to engage with the contacts of a [BS 1363](#) socket-outlet, and having socket-outlet contacts to accommodate one or more plugs of BS 1363-1:2023 or [BS 546:1950](#) type

3.4 adaptor plug

fused adaptor having one or more socket-outlets and provision for the connection of a flexible cable to a portable appliance, in parallel with the socket-outlet

3.5 adaptor socket-outlet

set of contacts for forming part of an adaptor and designed to engage with the pins of a corresponding plug

3.6 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.

3.7 calibrated link

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

3.8 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

3.9 class II

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

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).

3.10 clearance

shortest distance in air between two conductive parts

3.11 creepage distance

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

3.12 engagement surface of the plug portion of an adaptor

surface which is not able to be touched by test probe B specified in [BS EN 61032:1998](#) when the adaptor is in full engagement with a corresponding socket-outlet without any plugs being in engagement with the adaptor

3.13 engagement surface of the socket-outlet portion of an adaptor

surface, ignoring any raised marking, which is in contact with or directly beneath the [Figure 11](#) gauge when it is in full engagement with the socket-outlet

NOTE See [14.1](#).

3.14 fine wire thermocouple

thermocouple having wires not exceeding 0.3 mm in diameter

3.15 functional insulation

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

3.16 fuse carrier

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

3.17 fused adaptor

adaptor having a replaceable cartridge fuse link interposed between the line pin and one or more line socket contacts

3.18 indicator lamp (pilot lamp)

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

3.19 insignificant mass

insufficient combustible mass to constitute a fire hazard

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

3.20 insulated shutter opening device (ISOD)

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

3.21 intermediate adaptor

fused adaptor having one or more socket-outlets and provision for the connection of a flexible cable to a remote control device in series with the socket-outlet

3.22 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.

3.23 multiway adaptor

adaptor having more than one set of socket contacts

NOTE The socket contacts might or might not be of the same type or rating as the plug pin portion.

3.24 non-rewirable adaptor

adaptor as in [3.4](#) or [3.21](#), so constructed that it forms a complete unit with the flexible cable which cannot be replaced after assembly by the manufacturer of the adaptor

NOTE See also [13.7](#).

3.25 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

3.26 resilient material

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

3.27 rewirable adaptor

adaptor as in [3.4](#) or [3.21](#), so constructed to facilitate the fitting or replacing of a flexible cable using general purpose tools

3.28 screw type terminal

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.

3.29 shaver adaptor

fused adaptor specifically designed to have a single socket-outlet capable of accepting plugs of the following types: [BS 4573](#); [BS EN 50075](#); IEC TR 60083:2015, sheet US1, NEMA 1-15

3.30 shutter

movable device arranged to shield the current carrying socket-outlet contacts automatically when a corresponding plug is removed

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

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

*NOTE More information concerning small parts can be found in [BS EN IEC 60695-2-11:2021](#), **4.4**.*

3.32 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

3.33 switched adaptor

adaptor with associated switch or switches to disconnect the supply to the line socket contact or to both line and neutral socket contacts only and not for switching incorporated electronic components

3.34 terminal

means which facilitates an electrical connection between the appropriate flexible cable and the conducting parts of the adaptor without the use of special purpose tools

3.35 termination

means which facilitates an electrical connection between the appropriate flexible cable and the conducting part of the adaptor using special purpose tools, e.g. soldering, welding, crimping

3.36 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 with the requirements of the relevant standard

3.37 type test sample

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

4 Conditions of use

Adaptors 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; and
 - 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 the equivalent to pollution degree 2 (see [Annex B](#)), and Overvoltage Category III (see [Annex C](#)).
-

5 General

Adaptors 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 adaptors shall be capable of meeting all the relevant requirements and tests specified in this part of [BS 1363](#).

6 General conditions for type testing

6.1 All tests shall be type tests.

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

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

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

Adaptors shall be deemed to conform to this part of [BS 1363](#) if no sample fails in the complete series of tests given in [Table 1](#).

Table 1 — *Schedule of tests*

Sequence	Samples	Tests	Clause number
1	3	Inspection, measurement, gauging and manipulation	6, 7, 8, 10.1, 10.2, 10.3, 10.5, 10.6, 11.1, 12.1, 13.1, 13.2, 13.3, 13.4, 13.5, 13.6, 13.12 (13.12.1, 13.12.2, 13.12.3 and 13.12.6 only), 13.16, 13.17, 13.18, 13.19, 14.1, 14.2, 14.3, 14.4, 14.5, 14.8, 14.9, 14.10, 14.13, 20.2, 20.3, 20.4, 20.6, 9 (except Annex D), 22
2	3	General	6, 10.4, 20.1, 13.15, 13.20.2, 13.20.3, 13.20.2
3	3		6, 21.1.2, 21.1.3, 18, 14.12.1, 21.1.4, 17
4	3		6, 15.2, 13.11, 20.5, 13.20.4
5	3		6, 15.1, 21.1.5, 13.10, 11.2, 13.13, 13.7, 13.8, 13.9, 13.14
6	3		6, 15.1, 16, 14.7, 19, 14.11
7	3*		6, 13.12.4
8a)	9	Additional tests for adaptors with non-solid pins and/or an ISOD	6, 13.12.5
8b)	3	Additional tests for adaptors fitted with an ISOD	6, 13.12.4.3
9	3	Materials	6, 23
10	3		6, 24.2, 9.2 (Annex D only)
11	3		6, 25
12 ^{A)}	3	Positive break (switched adaptors)	6, 14.12.2
13	3	Overloads	6, 15.1, 27

NOTE 1 * denotes that an additional three samples will be required for adaptors with non-solid pins.

NOTE 2 The order of tests given in sequence 1 is preferred but not obligatory except where required within the text of the appropriate clause.

NOTE 3 ** denotes that additional samples might be required for adaptors incorporating electronic components.

^{A)} An additional new set of three samples prepared with the contacts closed might be required.

If one sample fails in a complete series of tests given in [Table 1](#), then adaptors of that type shall be deemed to have failed to conform to this part of [BS 1363](#), unless the adaptor 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 retest then adaptors of that type shall be deemed to conform to this part of [BS 1363](#).

If more than one sample fails in the complete series of tests given in [Table 1](#), the adaptors of that type shall be deemed not to conform to this part of [BS 1363](#).

NOTE 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.

- 6.2** All inspections and tests, of any one classification (see [Clause 7](#)), shall be carried out as specified in the clauses listed in [Table 1](#) on the number of samples in the sample column and in the order given.

- 6.3 Gauges in accordance with [Figure 5](#), [Figure 11](#), [Figure 12](#), [Figure 14](#), [Figure 16a](#)) and [Figure 16b](#)) 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

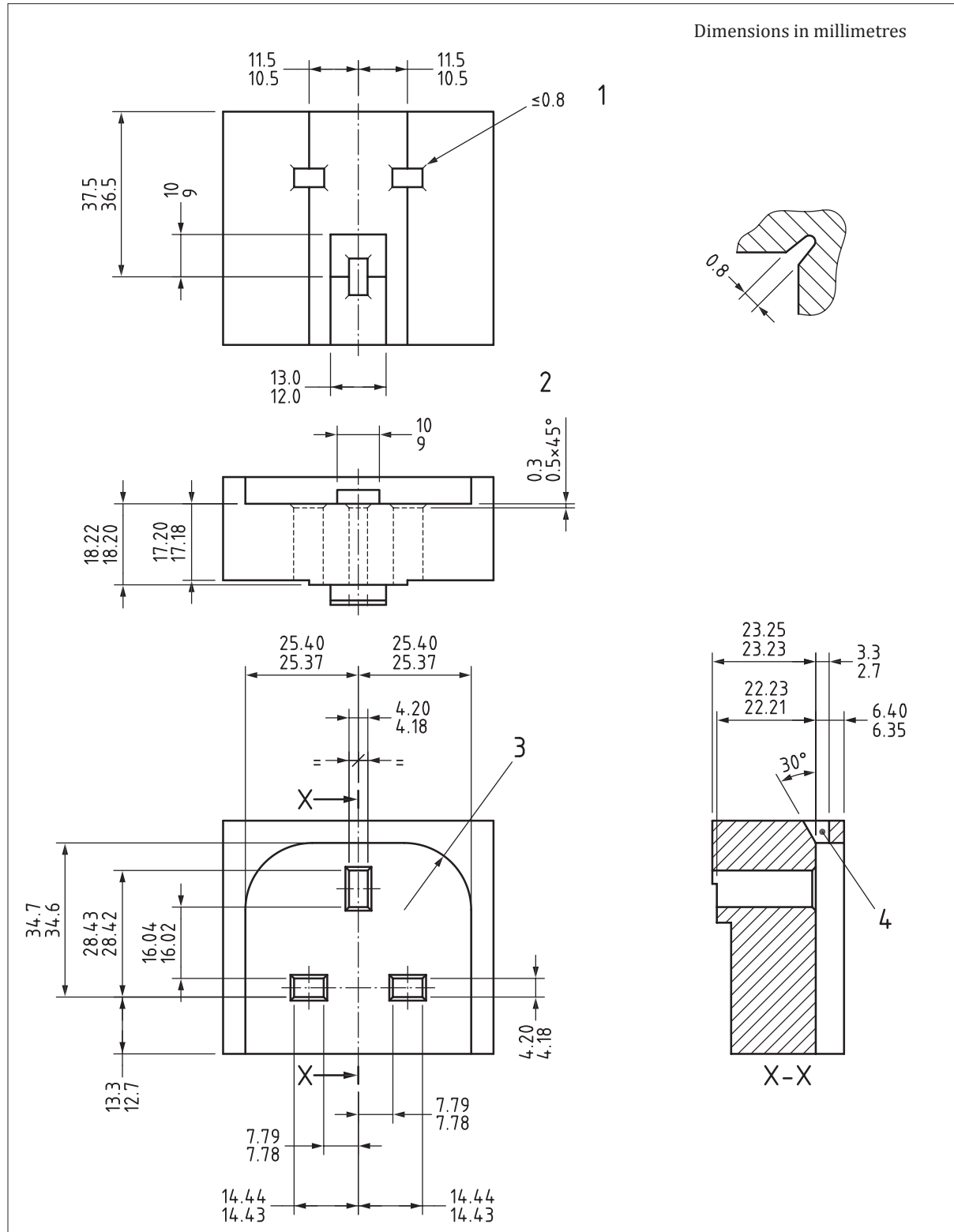


Figure 5 — Gauge for plug pins (continued)**Key**

- | | | | |
|---|---|---|---|
| 1 | Corners might be relieved up to width of 0.8 as shown | 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 |
| 2 | Chamfer all round | 4 | Slot optional |

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

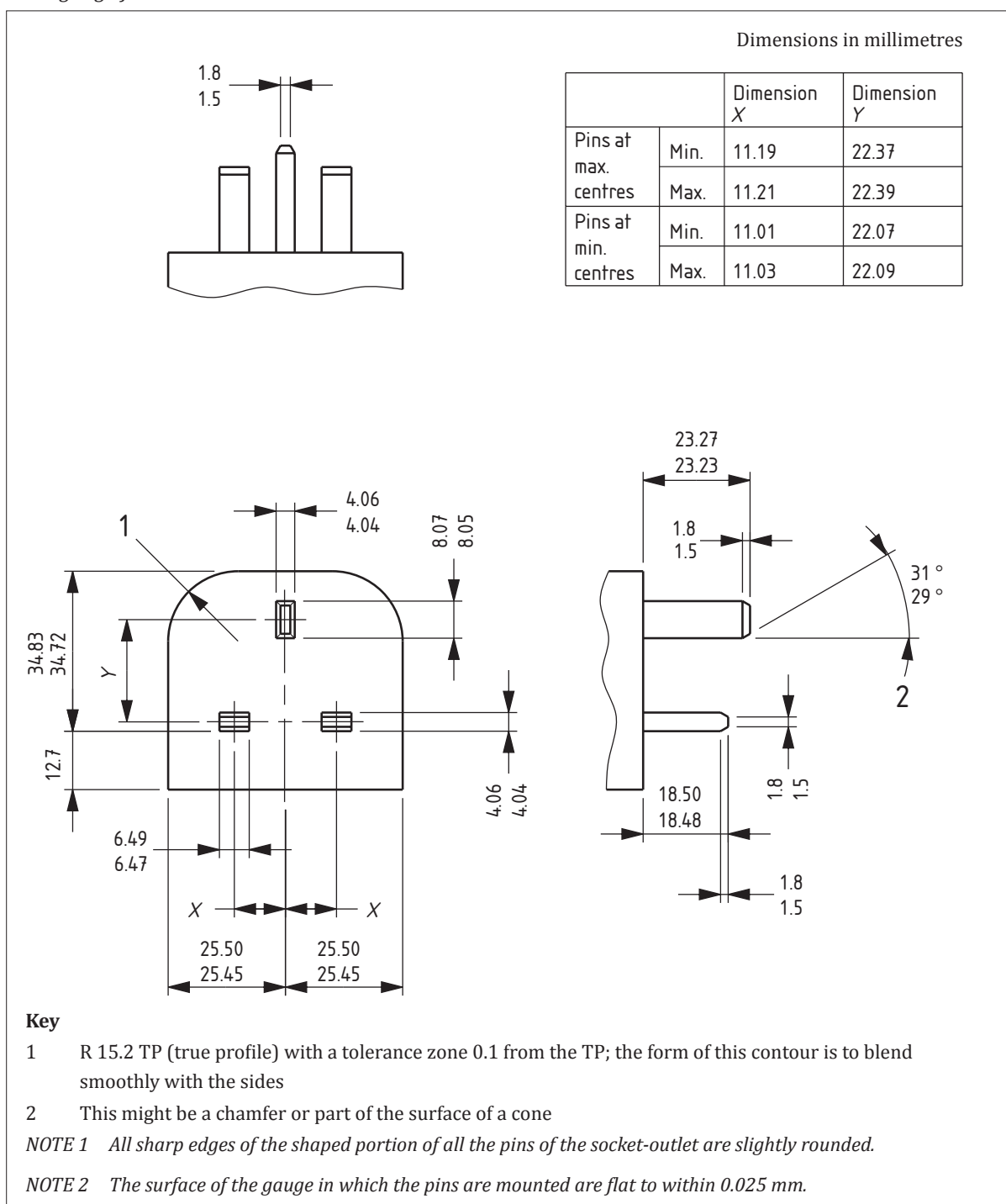
Figure 11 — GO gauge for socket-outlet

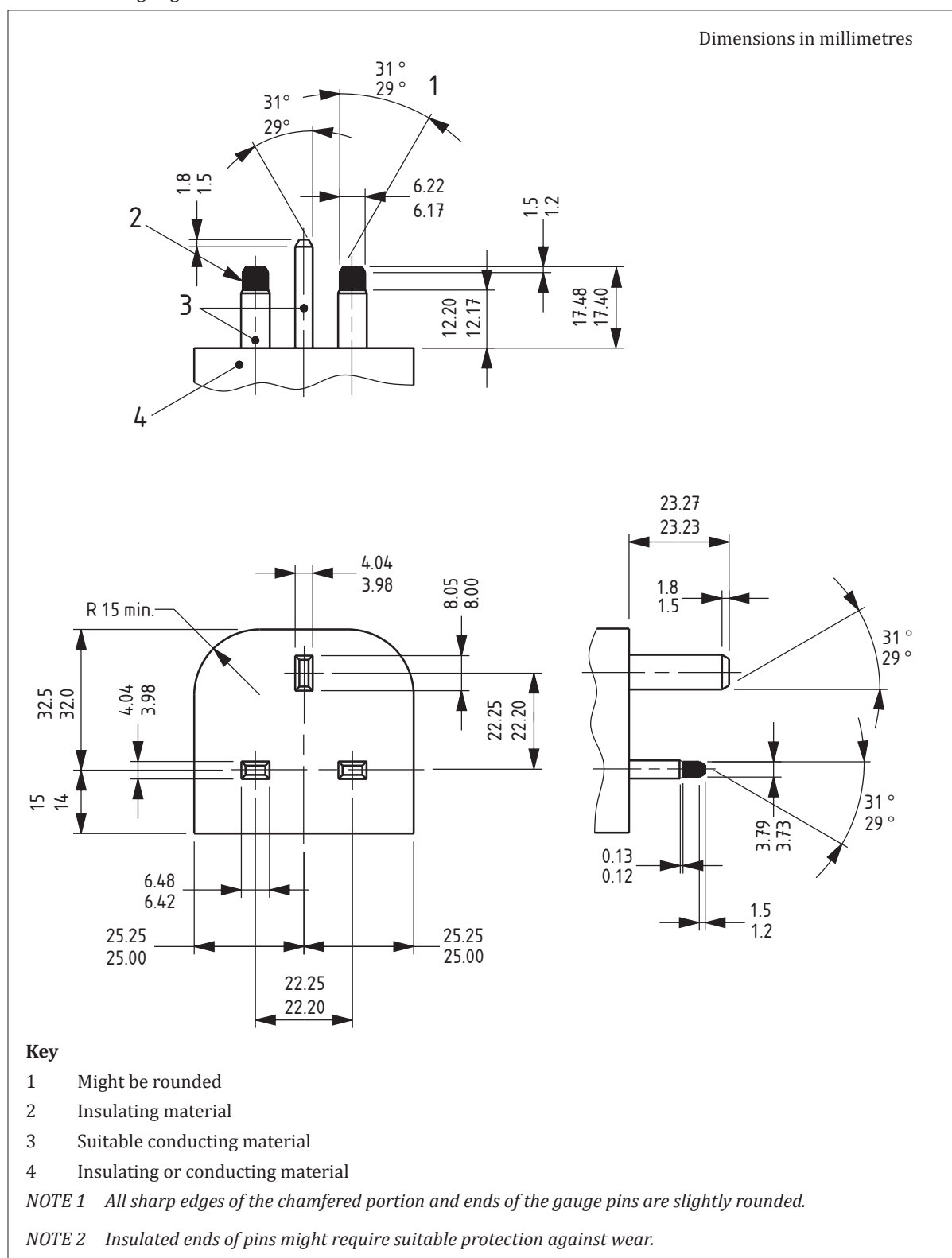
Figure 12 — Contact test gauge

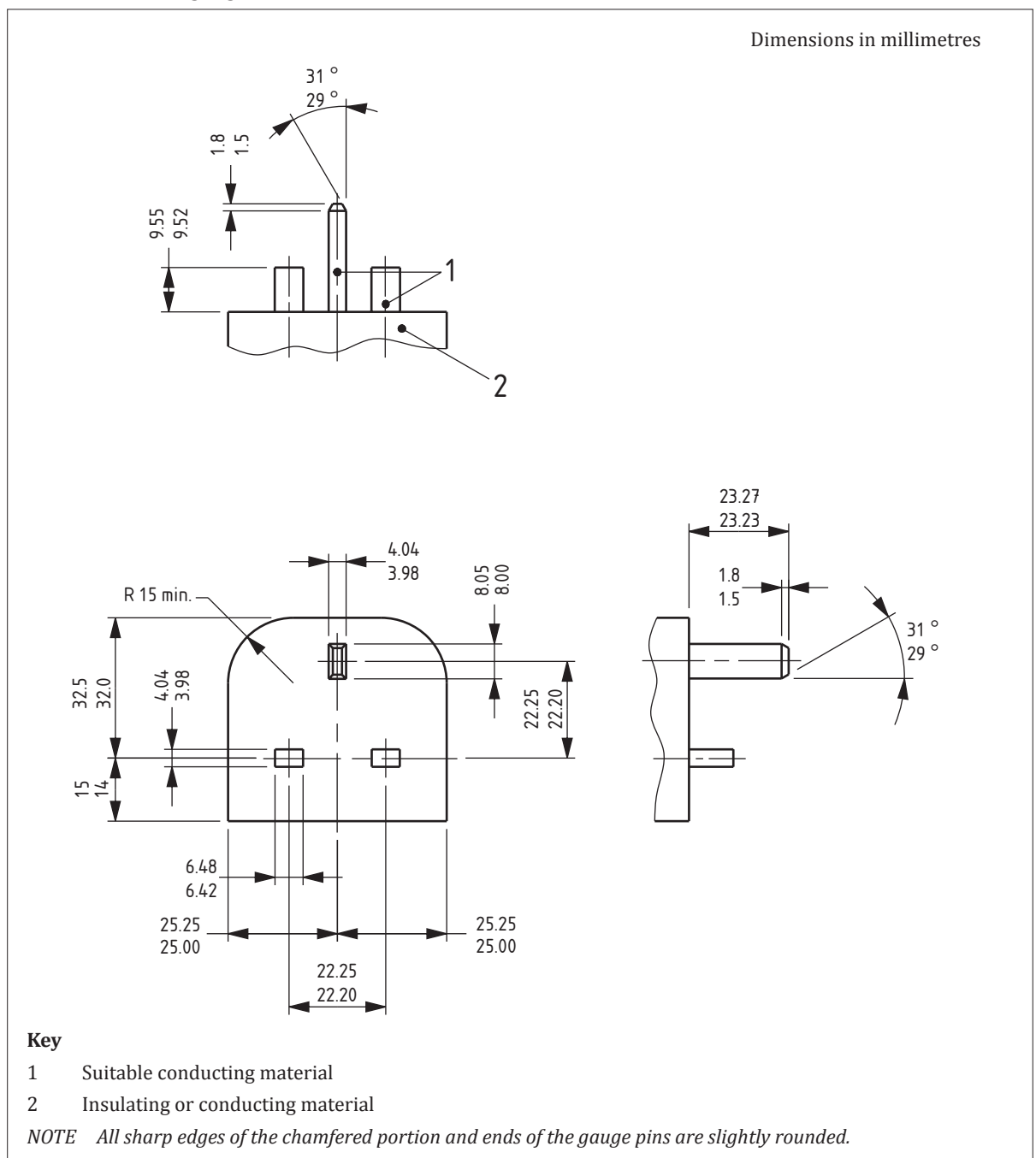
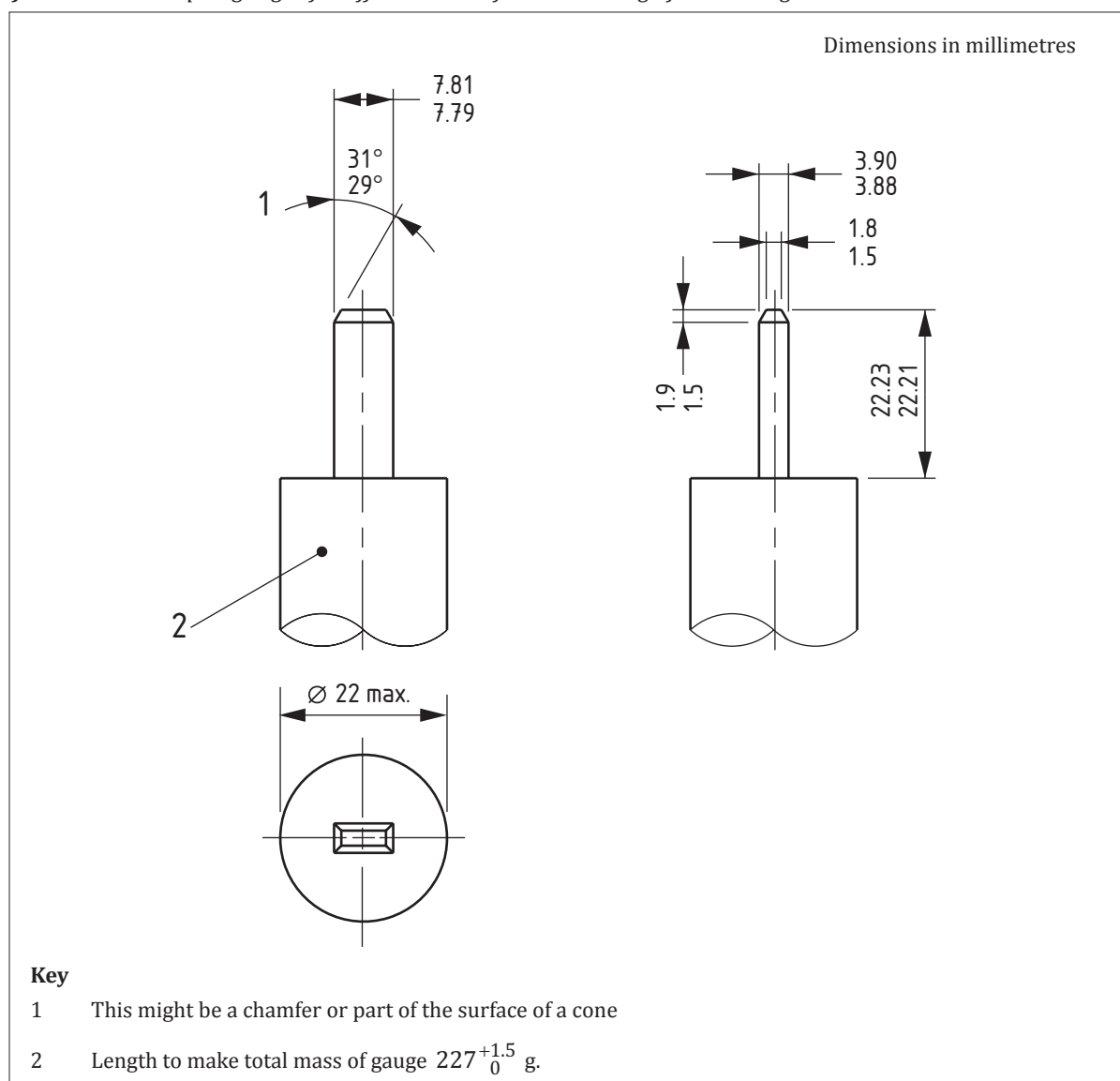
Figure 14 — Non-contact test gauge

Figure 16a) — *Withdrawal pull gauges for effectiveness of contact: Gauge for earthing socket contact*

7 Classification and rating

7.1 Classifications

Adaptors shall be classified as follows, as appropriate:

- a) fused or unfused;
- b) switched or unswitched;
- c) multiway (from [BS 1363](#) system to multiple outlets);
- d) intermediate;
- e) adaptor plug;
- f) rewirable or non-rewirable (in the case of an intermediate adaptor or adaptor plug);
- g) shaver adaptor fitted with an unterminated brass earth pin; or
- h) shaver adaptor fitted with an ISOD.

7.2 Rating

The rated voltage of adaptors which do not incorporate any electronic components other than indicator lights shall be 250 V.

The rated voltage of adaptors which incorporate electronic components shall be 230 V, 240 V or 250 V.

The rated current of adaptors shall be one of the following:

- a) 13 A for adaptors having BS 1363 type outlets;
- b) 13 A for an adaptor plug;
- c) equal to the sum of the rated currents of the adaptor socket-outlet portions, if this sum is lower than 13 A; or
- d) 13 A if the sum of the rated currents of the adaptor socket-outlet portions is higher than 13 A.

8 Marking and labelling

8.1 Adaptors 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, 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 1363](#)²⁾;
- c) on rewirable adaptors, the terminals intended for the connection of the various conductors shall be identified by the symbols given in [8.5](#);
- d) for fused adaptors, the words “FUSE” or “FUSED” or the symbol (given in [8.5](#)) on the external accessible surface of the adaptor;
- e) non-rewirable adaptors shall be marked on the engagement surface 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 cable;
- f) adaptors other than shaver adaptors shall be marked, on the engagement surface with their total maximum electrical load intended to be connected in amperes, as calculated in [7.2](#), e.g. “MAX 13 A”;
- g) shaver adaptors shall be marked on the accessible external surface with appropriate words, e.g. “SHAVERS ONLY”.

Shaver adaptors shall be marked on the engagement surface with appropriate words to indicate that the adaptor shall be fitted with a 1 A rated fuse conforming to BS 646:1958+A2:2013;

- h) all adaptors shall be marked with:
 - 1) rated volts; and
 - 2) nature of supply.

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 mm ²	Rated current ^{A)} A	Test current ±0.4 A A	Fuse rating A	Load for flexing test +2%, –0% kg	Cable grip tests	
					Load +2%, –0% kg	Torque ^{B)} Nm
0.5	3	3.5	3 (5) ^{C)}	1	3	0.15
0.75	6	7	7 (13) ^{C)}	1	3	0.20
1 (0.75) ^{D)}	10	11	10 (13) ^{C)}	2	3	0.25
1.25 (1) ^{D)}	13	14	13	2	6	0.30
1.5	13	14	13	2	6	0.35

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

^{B)} 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 ±10%.

^{C)} The figure in brackets indicates the fuse rating when a non-rewirable adaptor is used with certain types of appliances where the use of the higher rated fuse link is necessary because of their characteristics. Portable socket-outlets are not considered to be appliances and therefore the higher rated fuse cannot be used.

^{D)} The figure in brackets indicates the flexible cable size which may be used with a maximum flexible cable length of 2 m.

8.1.1 Conformity 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, 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 conform without test.

8.2 Rewirable intermediate adaptors and adaptor 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).

8.2.1 Conformity shall be checked by inspection.

8.3 Except where an intermediate adaptor or adaptor plug fitted with a flexible cable 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:

- the statement: “The flexible cable of this intermediate adaptor (or adaptor plug) must be connected to an item of equipment before being plugged into a socket-outlet.”;
- the maximum rating, in amperes, of the equipment to which it might be fitted (as given in [Table 2](#));
- the colour code of the cores of the flexible cable as follows:

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

Green-and-yellow	Earth (if any)
Blue	Neutral
Brown	Line"; and

- d) if the intermediate adaptor or adaptor plug is fitted with a 2-core flexible cable, the following statement:

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

8.3.1 Conformity shall be checked by inspection.

- 8.4** Rewirable adaptors and adaptor plugs shall be provided with adequate instructions for the safe connection of the appropriate flexible cables including clear instructions for the removal of insulation from the conductors.

8.4.1 Conformity shall be checked by inspection.

8.5 Symbols shall be as follows:

amperes	A
volts	V
alternating current	~
direct current (d.c.)	— — — —
line (adaptor plugs)	L
neutral	N
earth	 (preferred) or 

NOTE 1 The letter "E" may be used in addition to either of these symbols.

supply line terminal (intermediate adaptors)	L in or L1	supply line terminal (intermediate adaptors)
load line terminal (intermediate adaptors)	L out or L2	load line terminal (intermediate adaptors)
fuse		

NOTE 2 For the marking of the rated current and rated voltage of the adaptor, figures may be used alone. The figures for the current rating being placed before or above that of the rated voltage and separated by a line.

If a symbol for nature of supply is used, it shall be placed next to the marking for rated current and rated voltage.

EXAMPLES

13 A 250 V ~ or 13/250 ~ or $\frac{13}{250}$ ~
 or 13 A 250 V a.c. or 13/250 a.c. or $\frac{13}{250}$ a.c.

9 Clearances, creepage distances and solid insulation

Adaptors 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 might occur. Clearances, creepage distances and solid insulation shall conform to the relevant requirements of [9.1](#), [9.2](#), [9.3](#) and [9.4](#).

The distance between lead wires in the pinch of a neon lamp with external resistor shall be a minimum of 1 mm.

Adaptors conforming to the requirements for basic insulation shall be deemed to meet the requirements of this clause. If the manufacturer declares an insulation level exceeding basic insulation then the adaptor shall be tested accordingly.

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

NOTE 2 Product insulation consists of basic insulation and protective earthing as required by [BS EN 61140:2016](#) for Class I equipment. Mechanical strength equivalent to that which would be provided by reinforced insulation as listed in [BS EN 61140:2016](#) is achieved in [BS 1363](#) products through specific mechanical and material tests.

9.1 Clearances

Adaptors 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 C](#) and the pollution degree declared by the manufacturer according to [Annex B](#).

NOTE 1 For the measurements, all parts which can 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 2 Moveable parts are, for example, hexagonal nuts, the position of which cannot be controlled throughout an assembly.

9.1.1 Clearances for basic insulation

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

Conformity shall be checked by inspection, and if necessary, by measurement, or by the test of [Annex E](#).

Smaller clearances, other than those values marked in [Table 3](#) with footnote “B”, shall be permitted if the plug meets the impulse withstand voltage test of [Annex C](#) at the impulse voltage specified in [Table E.1](#). This exception shall apply 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.

If clearance distances are to be measured, this shall be carried out in accordance with [Annex F](#).

9.1.2 Clearances for functional insulation

The clearances for functional insulation shall be not less than the values specified for basic insulation in [9.1.1](#).

Conformity shall be checked by inspection, and if necessary, by measurement, or by the test of [Annex E](#).

If clearance distances are to be measured, this shall be carried out in accordance with [Annex F](#).

9.1.3 Clearances for supplementary insulation

The clearances for supplementary insulation shall be not less than the values specified for basic insulation in [9.1.1](#).

Conformity shall be checked by inspection, and if necessary by measurement, or by the test of [Annex E](#).

If clearance distances are to be measured, this shall be carried out in accordance with [Annex F](#).

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

^{A)} See [Annex C](#). This voltage is:

- for functional insulation: the minimum 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 adaptor;
- for other basic insulation: the highest impulse voltage that can occur in the circuit.

^{B)} Minimum clearances values are based on [BS EN IEC 60664-1](#).

9.1.4 Clearances for reinforced insulation

The clearances for reinforced insulation shall be not less than the values specified for basic insulation in [9.1.1](#) but using the next higher step for rated impulse withstand voltage given in [Table 3](#).

This requirement shall not be applied to the sleeves of the adaptor plug pins.

Conformity shall be checked by inspection and by measurement, or by the test of [Annex E](#).

9.1.5 Contact gap

The minimum contact gap shall be 1.2 mm when the switch is in the open position, except for electronic switches covered by [A.5](#).

Conformity shall be checked by measurement.

9.2 Creepage distances

The creepage distance 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.

NOTE 1 For the measurements, all parts which can 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 2 Moveable parts are, for example, hexagonal nuts, the position of which cannot be controlled throughout an assembly.

NOTE 3 A creepage distance cannot be less than the associated clearance.

Creepage distances shall be measured in accordance with [Annex F](#).

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 shall be determined in accordance with [Annex D](#).

NOTE 4 For glass, ceramics and other inorganic materials which do not track, creepage distances need not be greater than their associated clearance.

9.2.1 Creepage distances for basic insulation

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

Conformity shall be checked by measurement.

Table 4 — Minimum creepage distances (mm) 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 [BS EN IEC 60664-1:2020](#), Table F.3a and Table F.3b based on the nominal voltage of the supply system.

^{B)} Details of pollution degrees are given in [Annex B](#).

9.2.2 Creepage distances for functional insulation

The creepage distance for functional insulation shall be not less than the values specified for basic insulation in [9.2.1](#).

Conformity shall be checked by measurement.

9.2.3 Creepage distances for supplementary insulation

The creepage distances for supplementary insulation shall be not less than the values specified for basic insulation in [9.2.1](#).

Conformity shall be checked by measurement.

9.2.4 Creepage distances for reinforced insulation

The creepage distances for reinforced insulation shall be not less than those derived from twice the distance specified for basic insulation in [Table 4](#).

This requirement shall not be applied to the sleeves of the adaptor plug pins.

Conformity shall be checked by measurement.

9.3 Solid insulation

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

No minimum thickness is specified for solid insulation.

9.3.1 Conformity shall be checked by tests in accordance with [16.1.3](#) using the values given in [Table 5](#).

Table 5 — 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

9.4 Requirements for printed wiring boards and equivalent construction

Printed wiring boards and equivalent construction shall conform to [BS EN 60664-5](#).

Where coating, potting or moulding is used articles shall conform to [BS EN 60664-3](#).

10 Accessibility of live parts

- 10.1** Live parts of adaptors shall not be accessible when wired as in 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 adaptor is in full engagement with the socket-outlet.

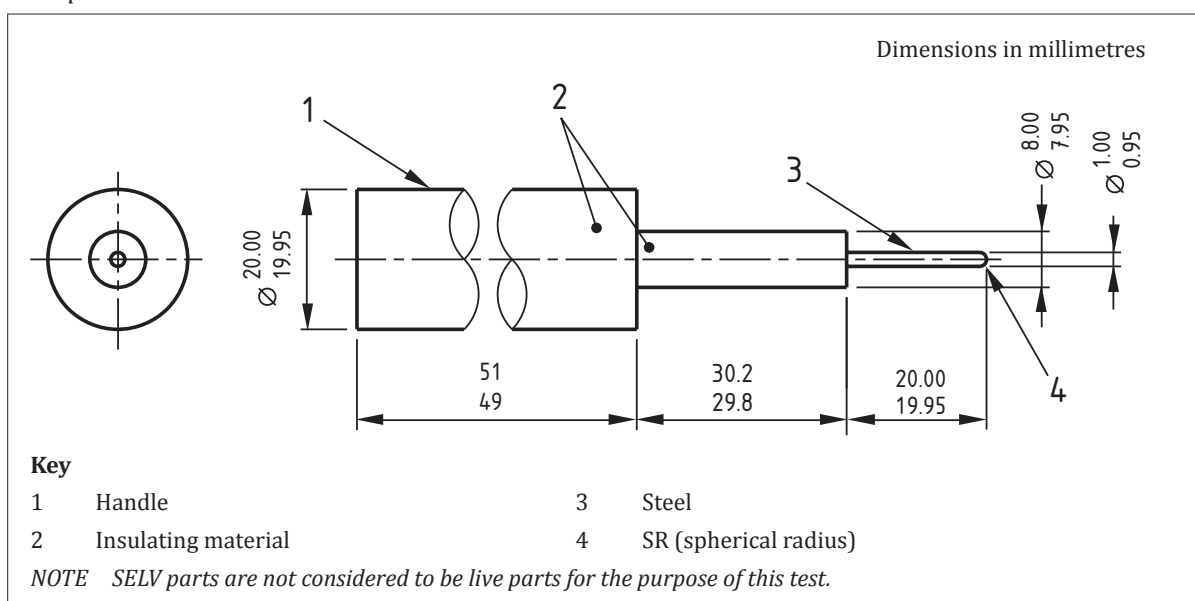
Additionally, adaptor plugs shall conform to this requirement without a flexible cable fitted.

- 10.1.1** Conformity 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 non-rewirable adaptors fitted with their appropriate flexible cables, rewirable intermediate adaptors fitted with a 2-core flexible cable as given in [BS EN 50525-2-71](#). Detachable fuse carriers shall be removed before this test is undertaken.

- 10.2** Adaptors shall be so designed that when they are mounted and wired as in normal use live parts are not accessible.

- 10.2.1** Conformity shall be checked by the application of the test pin shown in [Figure 1](#) perpendicular to the accessible external surface of the adaptor with a force of 5_{-1}^0 N. It shall not be possible to touch live parts.

Figure 1 — Test pin



- 10.3** The plug portion of an adaptor shall be designed and constructed so as to protect the user against accidental contact with live parts during insertion or withdrawal from corresponding socket-outlets. The socket-outlets of an adaptor shall be designed and constructed so as to protect the user against accidental contact with live parts during insertion or withdrawal of plugs.

- 10.3.1** Conformity shall be verified by satisfying the dimensional and gauging requirements of this part of [BS 1363](#).

10.4 Resilient covers of adaptors 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 9](#).

10.4.1 Conformity shall be checked by the following test [an example of a suitable apparatus is shown in [Figure 2a](#)].

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

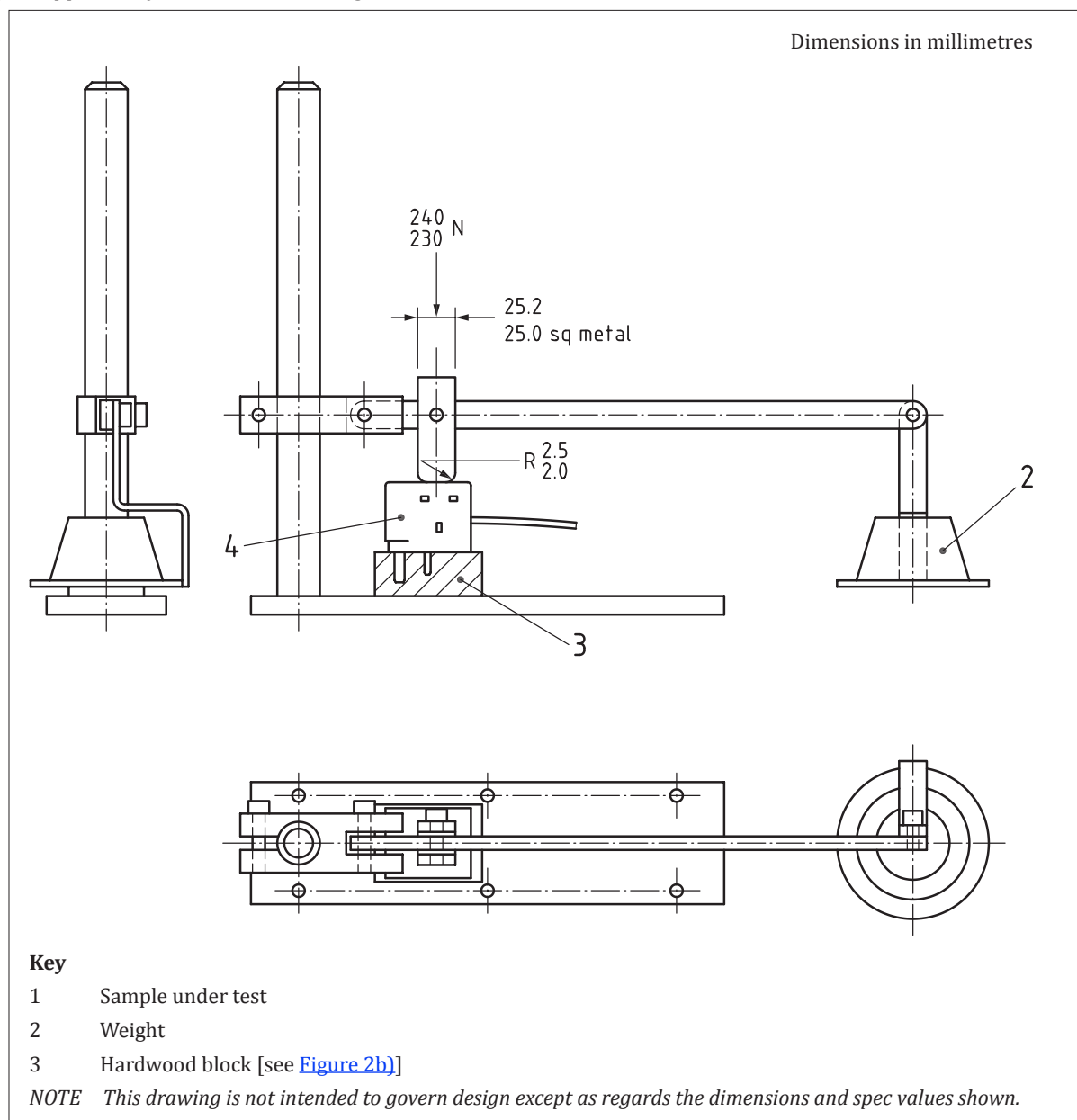
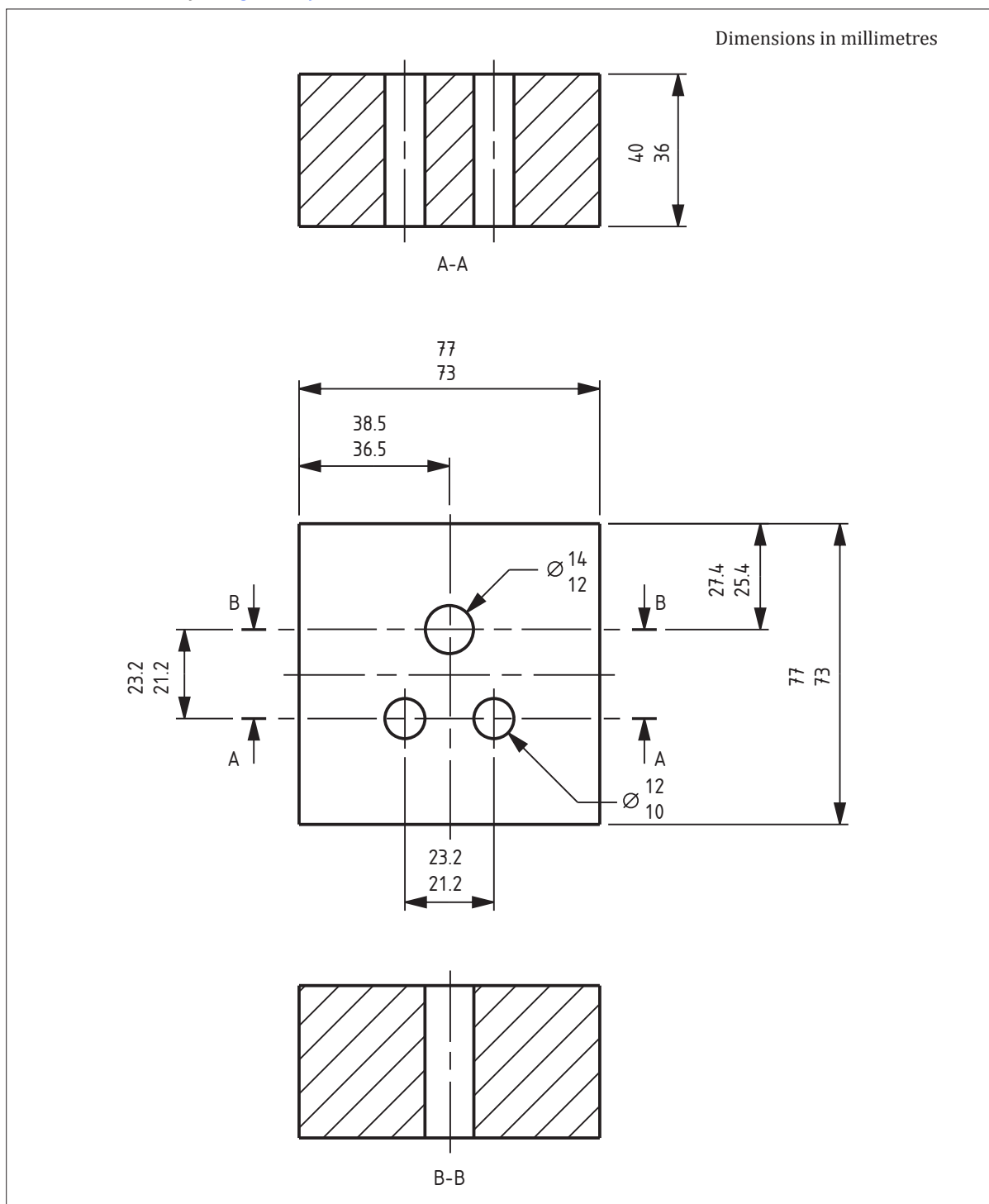


Figure 2b) — Hardwood block for [Figure 2a\)](#)

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 2a\)](#).

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 waveforce shall be applied for 60_{-0}^{+5} s between all live parts bonded together and the metal 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 probe 11 of [BS EN 61032:1998](#) applied with a force of 30_{-2}^0 N.

- 10.5** Except for assemblies supplied to equipment manufacturers for incorporation into their equipment, an intermediate adaptor or adaptor plug supplied fitted with a flexible cable shall have the free end of such an assembly encapsulated in insulating material.

10.5.1 Conformity shall be checked by inspection.

- 10.6** It shall not be possible to introduce a conducting device through the earthing socket aperture(s) of an adaptor in such a manner that there is a risk of making contact with live parts, or a live conductor with or without insulation.

10.6.1 Conformity shall be checked by introducing a rigid metal pin, $1_{-0.05}^0$ mm diameter $\times$ 60 mm $\pm$ 1 mm long, through any earthing socket aperture or apertures of a socket-outlet of an adaptor mounted as in normal use, applying a force of 5_{-1}^0 N, and with the conductors, if any, in the most unfavourable position.

11 Provision for earthing

- 11.1** Adaptors shall be so constructed that, when inserting a plug with an earthing pin into a corresponding socket-outlet of an adaptor the earth connection is made before the current carrying pins of the plug become live. When withdrawing a plug the current carrying parts shall separate before the earth contact is broken.

11.1.1 Conformity shall be checked by inspection and electrical test.

- 11.2** All accessible metal parts of adaptors shall be in effective electrical contact with the earthing socket-contact and 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 socket contact and earthing plug pin.

Metal parts having an accessible surface coating of lacquer or enamel shall be tested as accessible metal parts.

11.2.1 Conformity shall be checked by inspection, and the following:

- a) for metal parts insulated from live parts, by the test described in [16.1.3](#); and
- b) for metal parts connected to an earthing terminal or earthing plug pin, by the following test.

A current of 25 A $\pm$ 0.75 A, derived from an a.c. source having a no-load voltage not exceeding 12 V, shall be passed for 60_{0}^{+5} s as follows:

- 1) for all adaptors, between the earthing pin of the adaptor, and the following:
 - i) the terminal of an earthing pin of an appropriate plug inserted into each adaptor earthing socket contact;
 - ii) any accessible metal part intended to be earthed; and
- 2) for intermediate adaptors and adaptor plugs, between the earthing terminal, and the following:
 - i) the remote end of an earthing pin of an adaptor;
 - ii) any accessible metal part intended to be earthed.

The resistance between the earthing plug pin or earthing terminal and any other nominated part shall not exceed 0.05 Ω .

12 Terminals and terminations of intermediate adaptors and adaptor plugs

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

12.1.1 Conformity shall be checked in accordance with [12.2](#) to [12.9](#).

12.2 Rewirable adaptors shall be provided with terminals as defined in [3.34](#) or [3.28](#).

12.2.1 Conformity shall be checked by inspection.

12.3 Non-rewirable adaptors 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 cables unless the soldered area is entirely outside the crimp.

12.3.1 Conformity shall be checked by inspection and measurement.

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

12.4.1 Conformity shall be checked by inspection and fitting the appropriate conductors.

12.5 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 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.

12.5.1 Conformity shall be checked by inspection and measurement.

12.6 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.

12.6.1 Conformity shall be checked by inspection and measurement.

12.7 Insulating barriers in intermediate adaptors or adaptor plugs shall be an integral part, so arranged that with the cable 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; and
- b) the line conductor in a fused adaptor coming into contact with the line pin assembly.

12.7.1 Conformity shall be checked by inspection and, except for non-rewirable adaptors, by the following test.

Rewirable adaptors shall be wired as in normal use with an appropriate 0.5 mm² 3-core flexible cable as given in [BS EN 50525-2-11:2011](#) in accordance with the manufacturer's instructions. All terminal screws or nuts shall be tightened to the appropriate torque given in [Table 6](#).

Table 6 — Torque values for screws and nuts

Declared diameter of screw thread	Torque (see Note 1)		
	For metal screws (see Note 2)	For other metal screws and nuts	For screws of insulating material
mm	Nm	Nm	Nm
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 3.0 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 The recording of a measured value given in 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 $\pm 10\%$.

NOTE 2 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 blade wider than the diameter of the screw.

A continuity indicating circuit operating at not less than 40 V shall be connected between the conductors and the other parts nominated. All terminal screws shall then be loosened and the cable anchorage rendered inoperative and the cover of the adaptor refitted. The flexible cable shall then be withdrawn from the adaptor at a rate not exceeding 50 mm/min, the direction of the pull being varied, until the earth core is pulled free of the adaptor. The test shall be made six times in all. For each new test, a fresh section of the cable shall be fitted and the flexible cable 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.

12.8 Intermediate adaptors or adaptor 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 cable anchorage is rendered inoperative.

12.8.1 Conformity shall be checked by inspection and manipulation using an intermediate adaptor or adaptor plug wired in accordance with the manufacturer's instructions.

12.9 Terminals of intermediate adaptors or adaptor plugs shall be so located or shielded that if a strand of a flexible conductor escapes 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.

12.9.1 Conformity shall be checked by inspection, and by the following test.

A length of insulation in accordance with the manufacturer's instructions shall be removed from the end of a flexible conductor having a nominal cross-sectional area of 1.5 mm². One strand of the flexible conductor shall be left free and the other strands shall be fully inserted into and clamped in the terminal. The free strand shall be 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.