

Non-reversible connectors and appliance inlets for portable electrical appliances (for circuits up to 250 V) —

**Part 1: Specification for 13 A connector
and appliance inlet**

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Cooperating organizations

The Power Electrical Engineering Standards Committee, under whose direction this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations

- Associated Offices Technical Committee
- Association of Short Circuit Testing Authorities*
- British Electrical and Allied Manufacturers' Association (BEAMA)
- British Railways Board
- British Steel Corporation
- Department of Energy (Electricity)
- Electrical Contractors' Association*
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- Electrical Research Association*
- Electricity Supply Industry in England and Wales*
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- Institute of Purchasing and Supply
- Institution of Electrical Engineers*
- Ministry of Defence
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- Electrical Power Engineers' Association
- Electricity Consultative Councils
- Electronic Components Industry Federation
- Fire Offices Committee
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- National Inspection Council for Electrical Installation Contracting

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Foreword

The need for the specification covered by this British Standard has been reviewed and it has been decided that, in the interests of rationalization, it should be declared obsolescent. Its application for new apparatus is therefore not recommended and this standard will be withdrawn in due course. The relevant standard for new apparatus is currently BS 4491.

This revision of BS 3283-1 has been prepared under the direction of the Power Electrical Engineering Standards Committee and specifies requirements for 13 A appliance couplers for class I equipment.

BS 3283-2 specifies requirements for 6 A appliance couplers for class I equipment.

BS 3283-3 specified the requirements for 6 A appliance couplers for class II equipment, but it has now been withdrawn because of lack of use.

BS 3283-1 and BS 3283-2 will continue in use for so long as there is a commercial demand for this equipment.

This revision introduces separate requirements for rewirable and non-rewirable connectors and more closely aligns test requirements with those of BS 4491 and International Standards.

The 13 A appliance couplers are not specified in International Standards.

IMPORTANT NOTE. As all the original development of the 13 A appliance couplers was carried out using inch units, it has been considered necessary to retain these units in the appropriate figures.

Attention is drawn to BS 4491, which contains other appliance couplers compatible with those in CEE Publication 22, published by the International Commission of Rules for the Approval of Electrical Equipment (CEE) and IEC Publication 320, published by the International Electrotechnical Commission (IEC).

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

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

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 18, an inside back cover and a back cover.

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

1 Scope

Part 1 of this British Standard specifies rewirable and non-rewirable, non-reversible connectors and appliance inlets (2-pole and earth), rated at 13 A, 250 V, 50 Hz, for portable electrical appliances. The connectors, being non-reversible, may be used with appliances incorporating a single-pole switch.

The connectors are suitable for use on appliances where the temperature of the contact pins does not exceed 120 °C.

2 References

The titles of the publications referred to in this standard are listed on the inside back cover.

3 Definitions

For the purposes of this British Standard the following definitions apply (the terms “voltage” and “current” imply the r.m.s. values, unless otherwise specified).

3.1

appliance coupler

a means of enabling the connection at will of a flexible cord to an appliance. It consists of two parts:

- 1) **a connector**, which is the part integral with, or intended to be attached to, the flexible cord connected to the supply;
- 2) **an appliance inlet**, which is the part incorporated in, or fixed to, the appliance, or intended to be fixed to it

3.2

rewirable connector

an accessory so constructed that the flexible cord can be replaced

3.3

non-rewirable connector

an accessory so constructed that the flexible cord cannot be separated from the accessory without making it permanently useless

3.4

current carrying contacts

the contacts in the connector that engage with the current carrying pins of the appliance inlet

3.5

earthing contact of the connector

the contact for ensuring electrical connection between the earthing terminal of the connector and the corresponding pin of the appliance inlet when the connector is inserted into it

3.6

shroud

the portion of the appliance inlet that shrouds the pin

3.7

current carrying pins

the metallic contacts of the appliance inlet that engage with the corresponding current carrying contacts of the connector

3.8

earthing contact pin

the pin for ensuring electrical connection between the earthing contact of the connector and those parts of the appliance to be earthed when the connector is inserted in the appliance inlet

3.9

tool

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

3.9

cord grip

a device for securing the flexible cord where it enters that portion of the connector in which the cord protecting sleeve is provided

3.10

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 relative specification

3.11

type test sample

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

3.12

functional insulation

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

4 Requirements

4.1 Dimensions, creepage distances, clearances and distance through insulation

4.1.1 The dimensions of the connectors and appliance inlets shall be such as to secure interchangeability and to comply with the requirements of **5.2** and **5.3**.

4.1.2 The creepage distances over the surface of the insulation and the clearance distance in air shall be not less than the following values:

- a) between live parts of different polarity 3.0 mm
- b) between live parts and accessible metal parts 4.00 mm
- c) between live parts and inaccessible external metal parts (for connectors only) 3.0 mm
- d) between parts of the earthing circuit and:
 - live parts 4.0 mm
 - accessible metal parts 3.0 mm
 - inaccessible non-current-carrying metal parts 1.5 mm
- e) the minimum distance through a single layer of insulation between live parts and accessible metal parts:
 - for moulded-on connectors 1.5 mm
 - for other types of connector 1.0 mm

NOTE 1 The term "accessible metal parts" includes metal foil in contact with external surfaces of insulating material, other than the engagement face of connectors.

NOTE 2 Inaccessible metal parts are those that cannot be touched with test finger I of BS 3042.

4.2 Connectors

4.2.1 Materials. Component parts of connectors shall be manufactured from materials capable of withstanding the tests prescribed in clause **5**. Parts manufactured from ferrous metal shall be treated to resist rusting and to withstand the test specified in **5.14**.

4.2.2 Position of contacts. When viewed from the engagement face of a connector, the contacts shall have the relative positions shown in Figure 1.

4.2.3 Insulating case or cover. The end of the insulating case or cover which is inserted into the appliance inlet shall be cylindrical, with an outside diameter between 32.54 mm and 33.33 mm for a length of at least 25.4 mm.

A smooth and level area shall be provided, as shown cross-hatched in Figure 1, flush with the end surface of the case or cover suitable to withstand pressure from a safety device intended to eject the connector from an appliance inlet.

It shall not be possible to open the case or cover without the use of a tool.

4.2.4 Apertures for entry of pins. Apertures in the insulating case or cover shall have rounded edges to facilitate the entry of the pins of the appliance inlet, and shall have the dimensions shown in Figure 1.

4.2.5 Precautions against accidental contact with live parts. Precautions against accidental contact with live parts shall be as follows.

- a) With the exception of the apertures necessary for the entry of the contact pins, all live parts shall be completely enclosed by insulating material.
- b) Metal parts that are not completely enclosed and that may become live in the event of a failure of functional insulation shall be inaccessible when the connector is tested in accordance with **5.3**.

4.2.6 Contacts. Contacts shall be self-adjusting for pitch within the limits permitted by the tests specified in **5.2** and **5.4**, and shall make and maintain effective electrical and mechanical contact with appropriate pins of the minimum and maximum dimensions given in Figure 2. They shall permit full insertion of connector into the appliance inlet.

The contacts shall be shaped at the point of entry to afford easy access for the pins of the appliance inlet, and means for producing contact pressure shall be permanently associated with each contact independently.

The earthing contact of the connector shall make contact with the earthing pin of the appliance inlet before, and break contact after, the current carrying contacts of the connector make and break contact, respectively, with the corresponding pins of the appliance inlet.

Compliance with the above requirements shall be checked by the tests specified in **5.4**.

4.2.7 Withdrawal pull. The pull necessary to withdraw a connector from an appliance inlet, measured as described in **5.5**, shall not exceed 35 N.

4.2.8 High voltage test. Connectors shall be capable of withstanding an a.c. test voltage as described in **5.7.2**.

4.2.9 Heat resistance. Connectors shall be capable of withstanding the heat resistance test specified in **5.8**. This test is combined with the test of mechanical strength.

4.2.10 Breaking capacity. Appliance connectors shall have adequate current breaking capacity. Compliance shall be checked by the test specified in **5.9**.