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Part 1: General requirements

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Introduction

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For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



23B/1565/CD

COMMITTEE DRAFT (CD)

PROJECT NUMBER: IEC 63578-1 ED1	
DATE OF CIRCULATION: 2025-02-07	CLOSING DATE FOR COMMENTS: 2025-05-02
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IEC SC 23B : PLUGS, SOCKET-OUTLETS AND SWITCHES	
SECRETARIAT: Italy	SECRETARY: Mr Cristiano Masini
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 22, TC 82	HORIZONTAL FUNCTION(S):
ASPECTS CONCERNED: Safety	

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TITLE:

Prosumer plugs and prosumer inlets for household and similar purposes - Part 1: General requirements

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**Prosumer plugs and prosumer inlets for household and similar purposes
- Part 1: General requirements -**

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Draft	Report on voting
XX/XX/FDIS	XX/XX/RVD

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The language used for the development of this International Standard is **English [change language if necessary]**.

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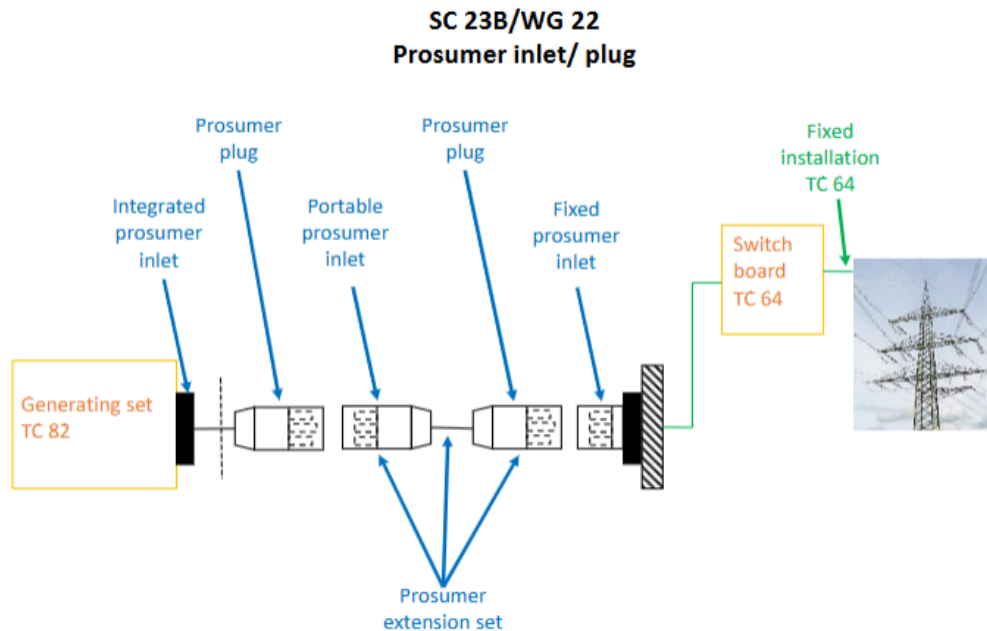
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- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

Prosumer plugs and prosumer inlets permit end-users to connect a generating set to the electrical installation.

The following figure shows an example of the use of Prosumer plugs and prosumer inlets:



Prosumer plugs and prosumer inlets in accordance with this document are not compatible with systems specified in standard sheets of IEC 60309 (all parts), IEC 60320 (all parts), IEC 60906 (all parts), IEC 61535 or with the national household plug and socket-outlet systems of the country where the product is placed on the market as given in IEC TR 60083.

Products in accordance with this standard are intended to be used in installations according to IEC 60364 series and the IEC 60364-7-751 (under preparation).

It is assumed that the design of the system is such that intervention on the electrical installation by ordinary persons is prevented.

The term “prosumer” is considered in respect to prosumer's electrical installation as defined in IEC 60364-8-82 and reflects the use of the inlet/plug coupling system covered by this document to connect a local power supply to an electrical installation thus becoming a prosumer's electrical installation.

Prosumer plugs and prosumer inlets for household and similar purposes - Part 1: General requirements -

1 Scope

This document applies to prosumer plugs and fixed or portable prosumer inlets and prosumer extension sets with a rated voltage greater than 50 V AC but not exceeding 250 V AC and not exceeding a rated current of 6A for household and similar purposes by ordinary persons, intended for outdoor use which can also be used indoor.

Prosumer plugs and prosumer inlets are intended to connect pluggable generating sets to the electrical installation which are intended to operate as additional power source in parallel to other power sources. See figures 1, 2 and 3.

Examples of power sources of generating sets to be used in domestic environment:

- photovoltaic cells
- small wind turbines
- sports equipment able to generate electrical energy
- batteries

This document covers prosumer plugs for power generating devices having means to limit the output voltage to a safe level when the prosumer plug is disconnected from the grid, e.g. those means according to .EN 50549-1

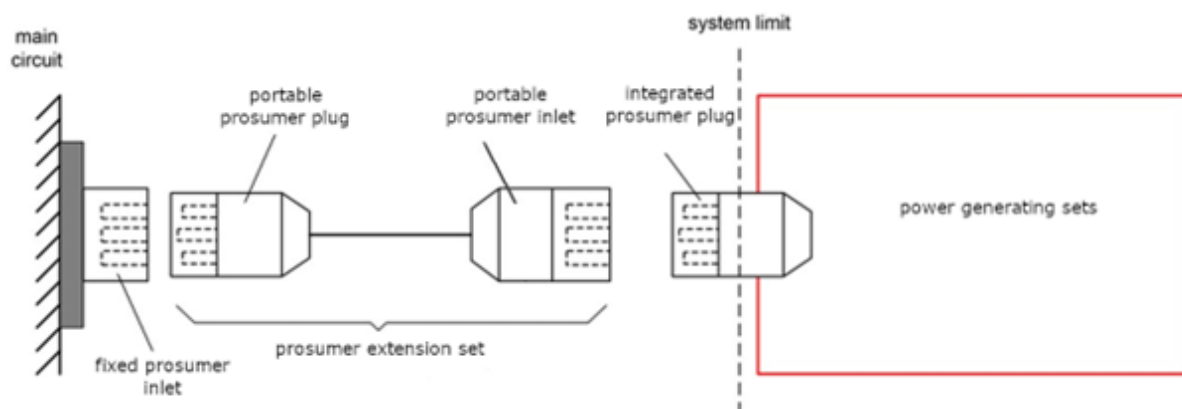


Figure 1 – Connection to prosumer inlet by means of a prosumer extension set and an integrated prosumer plug

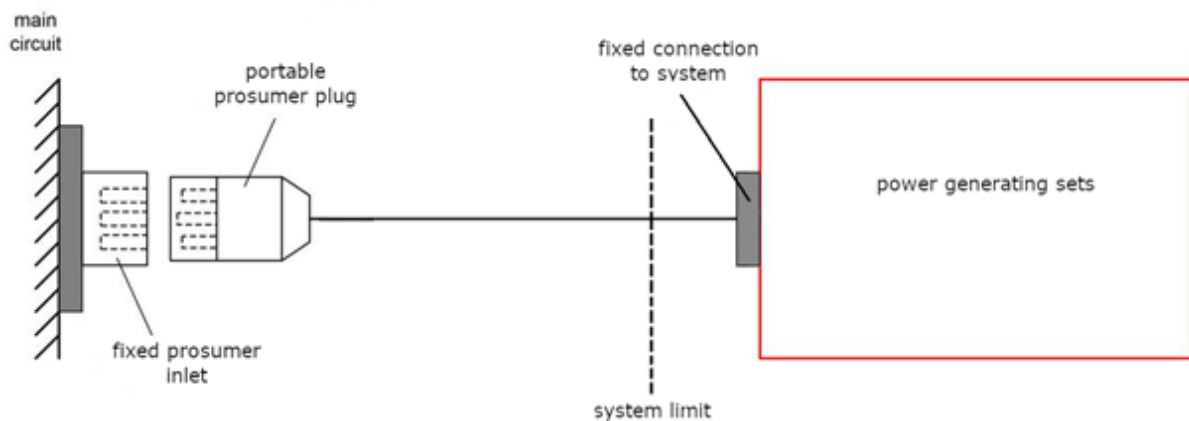


Figure 2 – Connection of a generating set to prosumer inlet via prosumer plug

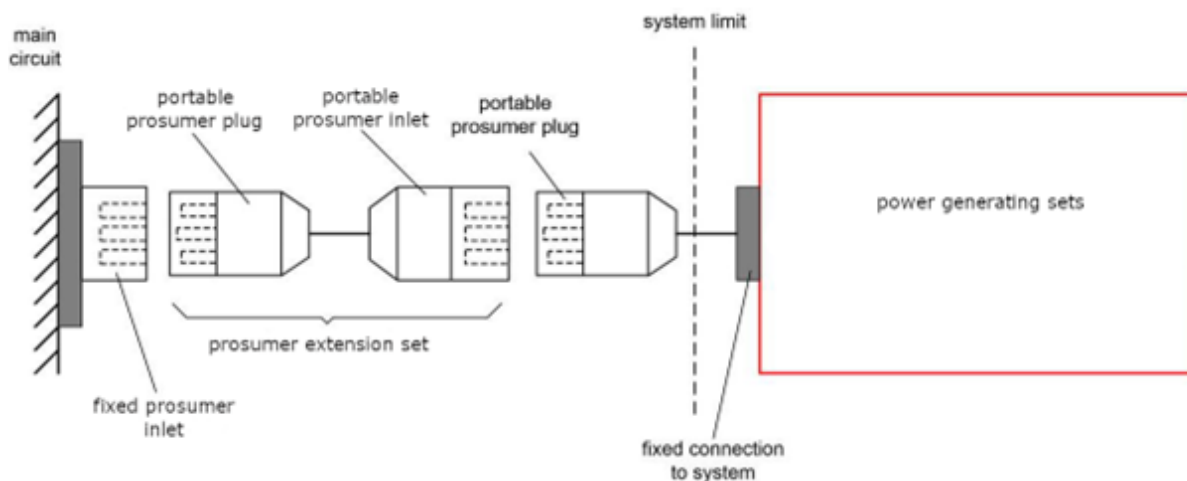


Figure 3 – Connection to prosumer inlet by means of a prosumer extension set

This document does not apply to:

- plugs, socket-outlets and couplers for industrial purposes covered by IEC 60309 (all parts)
- installation couplers covered by IEC 61535;
- plugs and socket-outlets covered by IEC 60884 (all parts)
- appliance couplers covered by IEC 60320 (all parts)

2 Normative references

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

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

IEC 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60352-2:2006, *Solderless connections - Part 2: Crimped connections - General requirements, test methods and practical guidance*

IEC 60417:2024 DB, *Graphical symbols for use on equipment - 12-month subscription to regularly updated online database comprising all graphical symbols published in IEC 60417*

IEC 60423:2007, *Conduit systems for cable management - Outside diameters of conduits for electrical installations and threads for conduits and fittings*

IEC 60512-16-4:2008, *Connectors for electronic equipment - Tests and measurements - Part 16-4: Mechanical tests on contacts and terminations - Test 16d: Tensile strength (crimped connections)*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60529:1989/AMD2:2013/COR1, *Corrigendum 1 - Amendment 2 - Degrees of protection provided by enclosures (IP Code)*

IEC 60664-1, *Insulation coordination for equipment within low-voltage supply systems - Part 1: Principles, requirements and tests*

IEC 60695-2-10, *Fire hazard testing - Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure*

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

IEC 60999-1:1999, *Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units - Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm² up to 35 mm² (included)*

IEC 61032, *Protection of persons and equipment by enclosures - Probes for verification*

IEC 61535, *Installation couplers intended for permanent connection in fixed installations*

ISO/IEC Guide 51, *Safety aspects — Guidelines for their inclusion in standards*

ISO 1456, *Metallic and other inorganic coatings — Electrodeposited coatings of nickel, nickel plus chromium, copper plus nickel and of copper plus nickel plus chromium*

ISO 2081, *Metallic and other inorganic coatings — Electroplated coatings of zinc with supplementary treatments on iron or steel*

ISO 2093, *Electroplated coatings of tin — Specification and test methods*

EN 50549-1, *Requirements for generating plants to be connected in parallel with distribution networks - Part 1: Connection to a LV distribution network - Generating plants up to and including Type B*

EN 60417-1, *Graphical symbols for use on equipment - Part 1: Overview and application*

IEC 60227, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 60227 (all parts) , *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 60245, *Rubber insulated cables - Rated voltages up to and including 450/750 V*

IEC 60245 (all parts), *Rubber insulated cables - Rated voltages up to and including 450/750 V*

IEC 60309 (all parts), *Plugs, fixed or portable socket-outlets and appliance inlets for industrial purposes*

IEC 60320 (all parts), *Appliance couplers for household and similar general purposes*

IEC 60884 (all parts), *Plugs and socket-outlets for household and similar purposes*

IEC 60906 (all parts), *IEC system of plugs and socket-outlets for household and similar purposes*

IEC 62821 (all parts), *Electric cables - Halogen-free, low smoke, thermoplastic insulated and sheathed cables of rated voltages up to and including 450/750 V*

IEC 63010 (all parts), *Halogen-free thermoplastic insulated and sheathed flexible cables of rated voltages up to and including 300/300 V*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

NOTE 1 Where the terms "voltage" and "current" are used, they imply RMS values, unless otherwise specified.

NOTE 2 Throughout this standard the word "earthing" is used for "protective earthing" unless otherwise stated.

NOTE 3 The term "accessory" is used as a general term covering Prosumer plugs and Prosumer inlets.

NOTE 4 Throughout this document the term "[prosumer inlet](#)" covers both fixed and portable prosumer inlets, except where the reference is specific to one type or the other.

NOTE 5 Throughout this document the term "[prosumer plug](#)" covers both fixed and portable prosumer plugs, except where the reference is specific to one type or the other.

3.1

prosumer plug

accessory having pins designed to engage with the contacts of a [prosumer inlet](#)

Note 1 to entry: See standard sheets in part - 2 of this standard.

3.2

integrated prosumer plug

prosumer plug intended to be integrated into a generating set

3.3

portable prosumer plug

prosumer plug intended to be connected to or integral with one flexible cable and which can easily be moved from one place to another while connected to the supply

3.4

prosumer inlet

accessory having contacts designed to engage with the pins of a prosumer plug

Note 1 to entry: See standard in part - 2 of this standard.

3.5

fixed prosumer inlet

prosumer inlet intended to be connected to an electrical installation

3.6

portable prosumer inlet

prosumer inlet intended to be connected to or integral with one flexible cable and which can easily be moved from one place to another while connected to the supply

3.7

prosumer extension set

assembly consisting of one flexible cable fitted with one portable prosumer plug and one portable prosumer inlet

3.8

non-rewirable accessory

assembly of an accessory and a flexible cable so constructed that the flexible cable cannot be replaced

3.9

retaining means

arrangement by which a prosumer inlet and a prosumer plug are held in position when they are properly engaged and prevent unintentional disengagement

[SOURCE: IEC 61535:2023, 3.15, modified]

3.10

ordinary person

person who is neither a skilled person nor an instructed person

[SOURCE: IEC 60050-195:1998; 195-04-03]

4 General requirements

Prosumer plugs and prosumer inlets shall be so designed and constructed that, in normal use, their performance is reliable, and safety is achieved by reducing risk to a tolerable level, as defined in .ISO/IEC Guide 51

Compliance is checked by meeting all relevant requirements and tests specified.

5 General remarks on tests

5.1 General

Tests shall be carried out to prove compliance with the requirements laid down in this document, where applicable.

Tests are carried out as follows:

- *type tests shall be carried out on representative specimens of each accessory.*
- *routine tests shall be carried out on the accessory or on parts of the accessory according to the requirements given in this document.*

5.2 to 5.5 are applicable to type tests and 5.6 to routine tests.

5.2 Products arrangement during test

Unless otherwise specified, the specimens are tested as delivered and under normal conditions of use.

The neutral, if any, is treated as a pole.

Accessories having provision for pilot lights shall be tested with pilot lights fitted, unless otherwise stated. The results of the tests shall be considered to apply to accessories of the same type which do not have this facility.

Accessories are tested with the type and size of flexible cable as delivered. Accessories not incorporated in a [prosumer extension set](#), or which are not a component of equipment, shall be provided, for testing, with at least 1 m of flexible cable.

Flush-type and semi-flush-type accessories shall be tested, if appropriate, when installed in a box complying with the applicable standard sheet(s), if any. If the accessory is manufactured for a specific box, the tests shall be conducted when the accessory is installed in the corresponding box as specified by the manufacturer.

Accessories which require a box to complete their enclosure are tested with their boxes.

The fixing screws of terminals, covers and cover-plates shall be tightened with a torque equal to two-thirds of the values specified in [Table 5](#) unless otherwise specified.

5.3 Ambient test condition

Unless otherwise specified, the tests are carried out in the order of the clauses at an ambient temperature between 15 °C and 35 °C.

It is recommended that the tests are carried out at an ambient temperature of (20 ± 5) °C.

5.4 Additional samples

A set of three specimens is subjected to all the relevant tests.

For the tests of [Clause 10](#), [Clause 12](#), [Clause 13](#), [Clause 19](#), [Clause 20](#), [Clause 22](#) and [Clause 23](#) additional specimens may be necessary.

5.5 Compliance general requirement

The specimens are submitted to all the relevant tests and the requirements are satisfied if all the tests are met.

If one specimen does not satisfy a test due to an assembly or a manufacturing fault, that test and any preceding one which may have influenced the results of the test shall be repeated, and also the tests which follow shall be made in the required sequence on another full set of specimens, all of which shall comply with the requirements.

NOTE The applicant can submit, together with a number of specimens specified in [5.4](#), the additional set of specimens which can be required, should one specimen fail. The testing station will then, without further request, test the additional specimens and will only reject them if a further failure occurs. If the additional set of specimens is not submitted at the same time, the failure of one specimen will entail rejection.

5.6 Routine tests

Routine tests for factory-wired portable accessories (protection against electric shock and correct polarity) are specified in [Annex A](#).

NOTE [Annex C](#) provides routine tests that can be applied during the production of crimped connections in accessories.

6 Ratings

Accessories shall have a rated voltage and a rated current according to the relevant standard sheets in part -2 of this document.

7 Classification

7.1 Accessories classification

Accessories are classified according to the degree of protection against access to hazardous parts and against harmful effects due to the ingress of solid foreign objects such as described in IEC 60529:1989/AMD2:2013/COR1.

Accessories are classified according to the degree of protection against harmful effects due to the ingress of water as described in IEC 60529.

Classification according to the method of connecting the cable:

Rewirable accessories;

Non-rewirable accessories.

Classification according to the type of terminals:

Accessories with screw type terminals;

Accessories with screwless-type terminals;

Accessories with insulation piercing terminals;

Classification according to the type of conductors to be connected:

For fixed prosumer inlets with rigid (both solid and stranded) conductors only;

For fixed prosumer inlets with rigid (both solid and stranded) and flexible conductors;

For portable accessories with flexible conductors only.

7.2 Prosumer inlet classification

Classification according to the method of application/mounting type of the accessory:

surface or

flush, or

semi-flush, or

portable, or

integrated into a generating set.

Classification according to the method of installation, as a consequence of the design:

fixed accessories where the cover or cover-plate can be removed without displacement of the conductors (design A), or

fixed accessories where the cover or cover-plate cannot be removed without displacement of the conductors (design B).

NOTE If a fixed accessory has a base which cannot be separated from the cover or cover-plate and requires a supplementary plate to meet the requirements of this document which can be removed for redecorating the wall without displacement of the conductors, it is considered to be of design A, provided the supplementary plate meets the requirements specified for covers and cover-plates.

according to the connection capacities of the **fixed prosumer inlet** terminals:

with a connection capacity of 1,5 mm²;

with a connection capacity from 1,5 mm² up and including 2,5 mm²

8 Marking

8.1 General

Accessories shall be marked as follows:

- rated current in amperes;
- rated voltage in volts;
- symbol for nature of supply;
- phase terminals with L and N
- earthing terminals with the symbol for protective earth
- the name, trademark or identification mark of the manufacturer or responsible vendor;
- type reference which may be a catalogue number;

NOTE 1 The type reference can be the series reference only.

- first characteristic numeral for the degree of protection against access to hazardous parts and against harmful effects due to ingress of solid foreign objects, if declared to be higher than 2, and for fixed prosumer inlets higher than 4, in which case the second characteristic numeral shall also be marked;

- second characteristic numeral for the degree of protection against harmful effects due to ingress of water, if declared to be higher than 0, and for fixed prosumer inlets higher than 2, in which case the first characteristic numeral shall also be marked.

NOTE 2 The degrees of protection are based on IEC 60529.

In addition, accessories with screwless-type terminals shall be marked with the following:

- an appropriate marking indicating the length of insulation to be removed before the insertion of the conductor into the screwless-type terminal;
- an indication of the suitability to accept rigid conductors only, for those socket-outlets having this restriction.

8.2 Symbols

When symbols are used, they shall be as follows:

Amperes A

Volts V

Alternating current ~ or AC



Protective earth (IEC 60417-5019 (2006-08))

Degree of protection, when relevant IPXX

Degree of protection for fixed prosumer inlets also able to be installed on rough surfaces



(test wall of 9 b) and 9 c)) IEC 60417-6345 (2015-07)

For screwless-type terminals: suitability to accept rigid conductors only r

NOTE 1 Details of construction of symbols are given in IEC 60417:2024 DB.

NOTE 2 In the IP code the letter "X" is replaced by the relevant number.

NOTE 3 Lines formed by the construction of the tool are not considered as part of the marking.

For the marking with rated current and rated voltage the values may be used alone. These values shall be placed on one line separated by an oblique line or the value for rated current shall be placed above the value for rated voltage, separated by a horizontal line.

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

NOTE 4 The marking for current, voltage and nature of supply can be, for example, as follows:

6 A 230 V AC or 6/230 AC

8.3 Particular requirements for fixed accessories

For fixed accessories the following marking shall be placed on the main part:

- rated current, rated voltage and nature of supply;
- either the name, trademark or identification mark of the manufacturer or of the responsible vendor;
- length of insulation to be removed before the insertion of the conductor into the screwless-type terminal;
- an indication of the suitability to accept rigid conductors only for screwless-type terminals for those accessories having this restriction;
- the type reference, which may be a catalogue number.

NOTE 1 The type reference can be the series reference only.

Parts such as cover plates, which are necessary for safety purposes and are intended to be sold separately, shall be marked with the manufacturer's or responsible vendor's name, trademark or identification mark and type reference.

NOTE 2 Additional type references can be marked on the main part, or on the outside of the associated enclosure. The IP code, if applicable, shall be marked so as to be easily discernible when the accessory is mounted and wired as for normal use.

8.4 Particular requirements for portable accessories

For portable accessories the marking specified in 8.1, other than the type reference, shall be easily discernible when the accessory is wired and assembled.

8.5 Particular requirements for markings on terminals

These markings shall not be placed on screws, or any other easily removable parts.

NOTE "Easily removable parts" are those parts which can be removed during the normal installation of the accessory.

Terminations in non-rewirable accessories need not be marked.

Leads of pilot lights are not considered to be conductors in the context of this subclause.

8.6 IP code marking for surface-type mounting boxes forming an integral part of accessories

For surface-type mounting boxes forming an integral part of accessories having an IP code higher than IP4X, or higher than IPX2, the IP code shall be marked on the outside of their associated enclosure so as to be easily discernible when the accessory is mounted and wired as in normal use.

8.7 Additional requirement for marking

It shall be indicated either by marking or in a manufacturer's catalogue or instruction sheet which position or with which special provisions (for example, box, type of mounting surface, plug, etc.) the declared degree of protection of fixed accessories having an IP code higher than IPX0 is ensured, unless this is self-evident.

Compliance is checked by inspection.

8.8 Durability

Marking shall be easily legible, durable and indelible.

Laser marking directly on the product and marking made by moulding, pressing or engraving are not subjected to this test.

Compliance is checked by inspection, using normal or corrected vision, without additional magnification and, if necessary, by the following test.

The test is done by rubbing the marking for 15 s with a piece of cotton cloth soaked with water and again for 15 s with a piece of cotton cloth soaked with n-hexane 95 % (Chemical Abstracts Service Registry Number, CAS RN, 110-54-3).

NOTE n-hexane 95 % (Chemical Abstracts Service Registry Number, CAS RN, 110-54-3) is available from a variety of chemical suppliers as a high pressure liquid chromatography (HPLC) solvent.

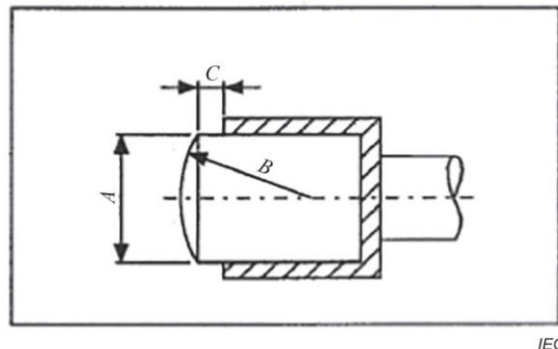
When using the liquid specified for the test, precautions as stated in the relative material safety datasheet provided by the chemical supplier shall be taken to safeguard the laboratory technicians.

The marking surface to be tested shall be dried after the test with water.

Rubbing shall commence immediately after soaking the piece of cotton, applying a compression force of (5 ± 1) N at a rate of about one cycle per second (a cycle comprising a forward and backward movement along the length of the marking). For markings longer than 20 mm, rubbing can be limited to a part of the marking, over a path of at least 20 mm length.

The compression force is applied by means of a test piston which is wrapped with cotton comprising cotton wool covered by a piece of cotton medical gauze.

The test piston shall have the dimensions specified in Figure 4 and shall be made of an elastic material which is inert against the test liquids and has a Shore-A hardness of 47 ± 5 (for example synthetic rubber).



Dimensions			
mm			
°	A	B	C
Dimensions	20	20	2
Tolerance	+2, -0	±0,5	+1, -0

Figure 4 – Test piston dimensions

When it is not possible to carry out the test on the specimens due to the shape/size of the product or the marking is not accessible with the test piston:

- a suitable piece having the same characteristics as the product can be submitted to the test or
- another test piston with different shape can be used on the condition that radius B is kept.

9 Checking of dimensions

9.1 General

Accessories shall comply with the appropriate standard sheets in part - 2 of this document.

Compliance is checked by the following test:

Prosumer inlets are first subjected to 10 insertions and 10 withdrawals of a prosumer plug complying with the corresponding standard sheet having the maximum dimensions for the pins following which dimensions are checked by measurement and/or by means of gauges.

Moreover, for shuttered prosumer inlets, to ascertain the easy insertion of a prosumer plug in the corresponding prosumer inlet the test as described in 22.4 shall be carried out on the same samples after the 10 insertions and withdrawals have been performed.

9.2 Dangerous compatibility

Accessories in accordance with this document are not compatible with systems specified in standard sheets of IEC 60309 (all parts), IEC 60320 (all parts), IEC 60906 (all parts), or with the national household plug and socket-outlet systems of the country where the product is placed on the market.

Accessories in accordance with this document are not intended to be compatible with installation coupler systems according to IEC 61535.

10 Protection against electric shock

10.1 General

Accessories shall ensure protection against electric shock.

For the purposes of this [Clause 10](#), lacquer, enamel and sprayed insulating coatings are not considered as insulating material.

Engaged accessories shall comply with the requirements for IP 2XD. Accessories shall be so designed that live parts are not accessible when disengaged and shall comply with the requirements for IP 2XB. The earthing contact and any metal parts connected to the earthing contact shall not be accessible when the energy coupler system is completely engaged.

Compliance is checked by the appropriate tests of IEC 60529, after the removal of parts which can be removed without the use of a tool.

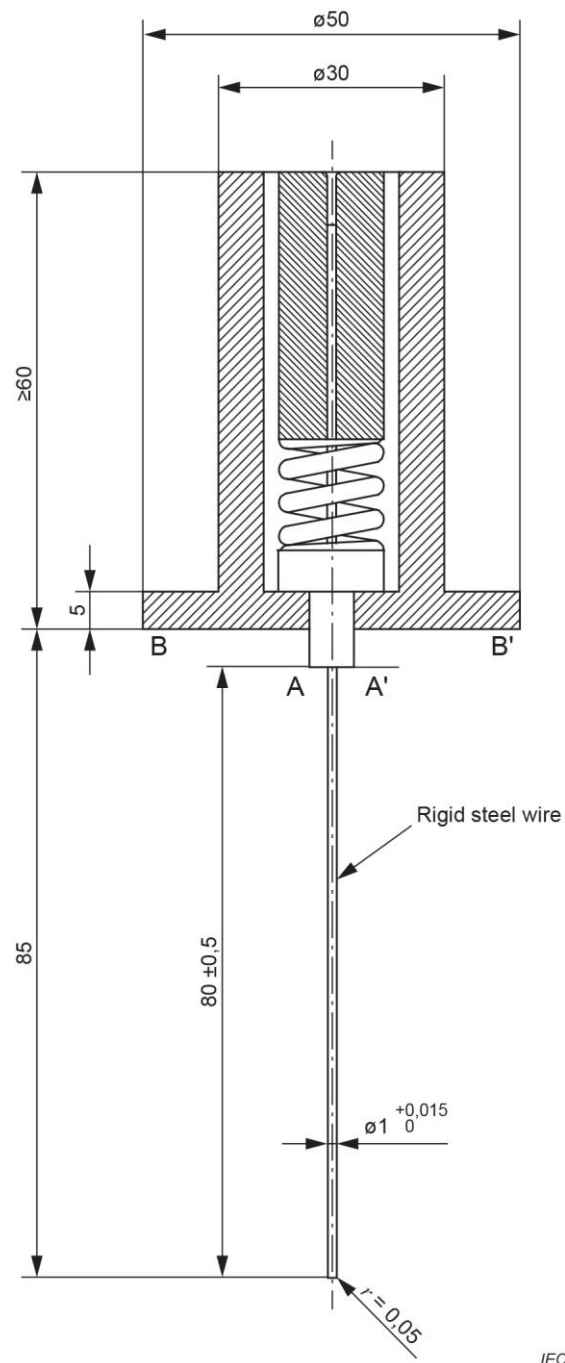
10.2 Accessibility of live parts during normal use

Prosumer inlets and prosumer plugs when engaged shall be so designed and constructed that when they are mounted and wired as for normal use, live parts are not accessible, even after removal of parts which can be removed without the use of a tool.

Compliance is checked by inspection and, if necessary, by the following test.

The test is carried out on the specimen mounted as for normal use and fitted with conductors of the smallest nominal cross-sectional area, the test being then repeated using conductors of the largest nominal cross-sectional area, specified in [Table 1](#).

The test wire of 1,0 mm in diameter (see [Figure 5](#)) a force of 1 N is applied in every possible position, an electrical indicator with a voltage between 40 V and 50 V being used to show contact with the relevant parts.



IEC

Figure 5 – Gauge for checking non-accessibility of live parts

10.3 Requirements for accessible parts of accessory during normal use

Accessible parts of the accessory when wired and/or mounted as in normal use shall be made of insulating material with the exception of the following:

- small screws and the like which are isolated from live parts and which are used for the fixing of the main part and of covers, cover plates or other parts of the enclosure of accessories;
- the covers, cover plates and other parts of the enclosure of fixed accessories and accessible parts of portable accessories made of metal which comply with the requirements of 10.3.2 or 10.3.3;
- earthing pins and earthing straps of accessories;

- current-carrying pins and metal shoulders around pins of prosumer plugs when not inserted in a prosumer inlet.

Compliance is checked by inspection.

Covers, cover plates or other parts of the enclosure of metal shall be protected by additional insulation made by insulating linings or insulating barriers. The insulating linings or insulating barriers shall either:

- be fixed to covers, cover plates, other parts of the enclosure or the body of the accessory in such a way that they cannot be removed without being permanently damaged, or
- be so designed that:
 - they cannot be replaced in an incorrect position;
 - if they are omitted, the accessories are rendered inoperable or manifestly incomplete;
 - there is no risk of accidental contact between live parts and metal covers, cover plates or other parts of the enclosure, for example through their fixing screws, even if a conductor should come away from its terminal;
 - precautions are taken in order to prevent creepage distances or clearances becoming less than the values specified in [Table 14](#).

Compliance is checked by inspection.

The above linings or barriers shall comply with the tests of [Clause 16](#) and [Clause 26](#).

The earthing of metal covers or cover plates can be made with fixing screws or other integral means, the resulting connection shall be of low resistance.

The creepage distances and the clearances between the live pins of a prosumer plug when fully inserted and the earthed metal cover of a prosumer inlet shall comply with [Table 14](#) respectively.

Compliance is checked by inspection and by the tests of [11.5](#).

11 Provision for earthing

11.1 General

Accessories shall be so constructed that when the accessories are engaged the earth connection is made before the current-carrying connections.

When withdrawing the accessories, the current-carrying connections shall separate before the earth connection is broken.

The insertion and withdrawal of the prosumer plug shall be in a direction perpendicular to the engagement face of the prosumer inlet. An electrical indicator supplied with a voltage between 40 V and 50 V is used to check that the earth contact makes first and breaks last.

11.2 Earthing terminals

Earthing terminals of rewirable accessories shall comply with the appropriate requirements of [Clause 12](#).

Earthing terminals of rewirable accessories shall be of the same size as the corresponding terminals for the supply conductors.

Earthing terminals of rewirable accessories shall be internal.

Earthing terminals of fixed prosumer inlets shall be fixed to the base or to a part reliably fixed to the base.

Earthing contacts of fixed prosumer inlets shall be fixed to the base or to the cover, but, if fixed to the cover, they shall be automatically and reliably connected to the earthing terminal when

the cover is put in place, the contact pieces being silver-plated or having a protection no less resistant to corrosion and abrasion.

This connection shall be ensured under all conditions which may occur in normal use, including loosening of cover-fixing screws, careless mounting of the cover, etc.

Except as mentioned above, parts of the earthing circuit shall be in one piece or shall be reliably connected together by riveting, welding, or the like.

NOTE 1 The requirement regarding the connection between an earthing contact fixed to a cover and an earthing terminal can be met by the use of a solid pin and a resilient socket-contact.

NOTE 2 For the purpose of the requirements of this 11.2, screws are not considered as parts of contact pieces.

NOTE 3 When considering the reliability of the connection between parts of the earthing circuit, the effect of possible corrosion is taken into account.

11.3 Accessible metal parts

Accessible metal parts of accessories with earthing contact, which may become live in the event of an insulation fault, shall be permanently and reliably connected to the earthing terminal.

This requirement does not apply to the accessible metal parts mentioned in 10.3.2.

For the purpose of this requirement, small screws and the like, electrically separated from live parts, for fixing main parts, covers, or cover-plates, are not considered as accessible parts which may become live in the event of an insulation fault.

11.4 Requirements for prosumer inlets having an IP code higher than IPX0

Prosumer inlets, having an IP code higher than IPX0, with an enclosure of insulating material, having more than one cable inlet, shall be provided with an internal fixed earthing terminal or adequate space for a floating terminal allowing the connection of an incoming and an outgoing conductor for the continuity of the earthing circuit unless the earthing terminal of the socket-outlet itself is so designed that it allows the connection of an incoming and an outgoing earthing conductor.

Floating terminals are not subject to the requirements of Clause 12.

Compliance with 11.2 to 11.4 is checked by inspection and by the tests of Clause 12.

Compliance with requirements to ensure adequate space for floating terminals is checked by performing a test connection using the type of terminal specified by the manufacturer.

11.5 Internal connection with the earthing terminal

The connection between the earthing terminal and accessible metal parts to be connected thereto, shall be of low resistance.

Compliance is checked by the following test.

A current derived from an AC or DC source having a no-load voltage not exceeding 12 V and equal to 1,5 times the rated current or 25 A, whichever is the greater, is passed between the earthing terminal and each of the accessible metal parts in turn.

The voltage drop between the earthing terminal and the accessible metal part is measured, and the resistance calculated from the current and this voltage drop.

In no case shall the resistance exceed 0,05 Ω .

Care should be taken that the contact resistance between the tip of the measuring probe and the metal part under test does not influence the test results.

12 Terminals and terminations

12.1 General

All the tests on terminals, with the exception of the test of 12.3.9, shall be made after the test of 15.1.

Prosumer inlets and rewirable prosumer plugs shall be provided with screw-type terminals or with screwless-type terminals which allow the proper connection of copper conductors having cross sectional area as shown in Table 1.

If pre-soldered flexible conductors are used, care shall be taken that in screw-type terminals the pre-soldered area shall be outside the squeezed area when connected as for normal use.

The means for clamping the conductors in the terminals shall not serve to fix any other component, although they may hold the terminals in place or prevent them from turning.

Non-rewirable prosumer plugs and non-rewireable prosumer inlets shall be provided with soldered, welded, crimped or equally effective permanent connections for copper conductors as shown in Table 1; screwed or snap-on connections shall not be used.

Connections made by crimping a pre-soldered flexible conductor are not permitted, unless the soldered area is outside the crimping area.

Compliance is checked by inspection and the following tests.

12.2 Screw-type terminals for external copper conductors

Screw-type terminals shall allow the conductor to be connected without special preparation having a nominal cross-sectional area as shown in Table 1.

Table 1 – Relation between type of accessory and the connectable cross sectional areas

			Diameter of the largest conductor	
			mm	
Accessory	Connection capacity classification	Conductor cross-sectional area	Rigid (solid or stranded) copper conductors	Flexible copper conductors
		mm ²	mm	mm
Fixed prosumer inlet	7.2.5.1	1 × 1,5	1,45	1,73
	7.2.5.2	From 1 × 1,5 up to and including 1 × 2,5	2,13	2,21
Portable prosumer inlet and prosumer plug	-	From 1 × 0,75 up to and including 1 × 1,5	-	1,73

Compliance is checked by inspection and by fitting conductors of the smallest and largest nominal cross-sectional areas specified in Table 1.

Terminals with screw clamping shall allow the conductor to be connected without special preparation.

Compliance is checked by inspection.

NOTE The term "special preparation" covers soldering of the wires of the conductor, use of cable lugs, formation of eyelets, etc., but not the reshaping of the conductor before its introduction into the terminal or the twisting of a flexible conductor to consolidate the end.

Screw-type terminals shall have adequate mechanical strength.