IEC 60320-1

Edition 4.0 2021-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Appliance couplers for household and similar general purposes – Part 1: General requirements

Connecteurs pour usages domestiques et usages généraux analogues – Partie 1: Exigences générales

IEC 60320-1:2021-07(en-fr)

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Appliance couplers for household and similar general purposes – Part 1: General requirements

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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APPLIANCE COUPLERS FOR HOUSEHOLD AND SIMILAR GENERAL PURPOSES –

Part 1: General requirements

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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IEC 60320-1 has been prepared by subcommittee 23G: Appliance couplers, of IEC technical committee 23: Electrical accessories. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2015 and Amendment 1:2018. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) introduction of necessary tolerances throughout this document;
b) the heating test from edition 2 is reintroduced in 18.2;
c) temperature rise added for plug connectors in Clause 21;
d) change for better readability in 23.3;
e) updated lateral pull test in 23.6 for connectors/plug connectors with separate front parts;

f) revision of 24.1 for ball pressure test;

g) Clause 27 for glow wire test is updated;

h) revision of Annex C for test sequences;

i) additional Annex E for additional tests and requirements for appliance couplers intended to be used in ambient temperatures above +35 °C.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
23G/464/FDIS	23G/467/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

A list of all the parts in the IEC 60320 series, under the general title *Appliance couplers for household and similar general purposes*, can be found on the IEC website.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

APPLIANCE COUPLERS FOR HOUSEHOLD AND SIMILAR GENERAL PURPOSES –

Part 1: General requirements

1 Scope

This part of IEC 60320 sets the general requirements for appliance couplers for two poles and two poles with earth contact and for the connection of electrical devices for household and similar onto the mains supply.

This document is also valid for appliance inlets/appliance outlets integrated or incorporated in appliances.

The rated voltage does not exceed 250 V (AC) and the rated current does not exceed 16 A.

Appliance couplers complying with this document are suitable for normal use at ambient temperatures not normally exceeding +40 °C, but their average over a period of 24 h does not exceed +35 °C, with a lower limit of the ambient air temperature of −5 °C.

Annex E provides test requirements for derating the operating current of an accessory when used in ambient temperatures above +35 °C up to and including +90 °C.

Appliance couplers are not suitable for:

– use in place of plug and socket-outlet systems according to IEC 60884-1;
– use in place of devices for connecting luminaires (DCLs) according to IEC 61995 or luminaire supporting couplers (LSCs);
– use in place of installation couplers according to IEC 61535.

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 60068-2-31, *Environmental testing – Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens*

IEC 60068-2-60, *Environmental testing – Part 2-60: Tests – Test Ke: Flowing mixed gas corrosion test*

IEC 60068-2-75, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 60112:2020, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60227 (all parts), *Polyvinyl chloride insulated cables of 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 60320-3:2014, *Appliance couplers for household and similar general purposes – Part 3: Standard sheets and gauges*
IEC 60320-3:2014/AMD1:2018

IEC 60417, *Graphical symbols for use on equipment* (available from: http://www.graphical-symbols.info/equipment)

IEC 60664-1:2020, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60695-2-11:2014, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)*

IEC 60695-10-2:2014, *Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test method*

IEC 60730-2-11:2019, *Automatic electrical controls – Part 2-11: Particular requirements for energy regulators*

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 mm^2 up to 35 mm^2 (included)*

IEC 61032:1997, *Protection of persons and equipment by enclosures – Probes for verification*

IEC 61058 (all parts), *Switches for appliances*

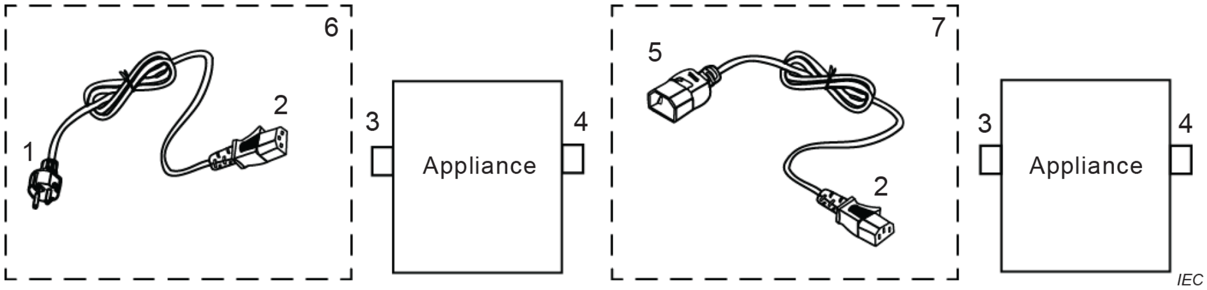
3 Terms and definitions

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

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

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

3.1
appliance coupler
means enabling the connection and disconnection of an appliance or equipment to the supply



1 Plug
2 Connector (see 3.1.1)
3 Appliance inlet (see 3.1.2)
4 Appliance outlet (see 3.2.2)
5 Plug connector (see 3.2.1)
6 Cord set (see 3.5)
7 Interconnection cord set (see 3.6)

Figure 1 – Intended use of appliance couplers

3.1.1
connector (of an appliance coupler)
part of the appliance coupler integral with, or intended to be attached to, one cord connected to the supply

SEE: Figure 1.

[SOURCE: IEC 60050-442:1998, 442-07-02, modified – "the cord" has been replaced with "one cord" and a reference to Figure 1 has been added.]

3.1.2
appliance inlet
part of the appliance coupler integrated as a part of an appliance or incorporated as a separate part in the appliance or equipment or intended to be fixed to it

SEE: Figure 1.

3.2
interconnection coupler
appliance coupler enabling the connection and disconnection of an appliance or equipment to a cord leading to another appliance or equipment

SEE: Figure 1.

Note 1 to entry: An interconnection coupler is a type of appliance coupler.

3.2.1
plug connector
part of the interconnection coupler integral with or intended to be attached to one cord

SEE: Figure 1.

[SOURCE: IEC 60050-442:1998, 442-07-09, modified – "the flexible cable" has been replaced with "one cord" and a reference to Figure 1 has been added.]

3.2.2
appliance outlet
part of the interconnection coupler integrated in or incorporated in the appliance or equipment or intended to be fixed to it, and from which the supply is obtained

SEE: Figure 1.

[SOURCE: IEC 60050-442:1998, 442-07-08, modified – A reference to Figure 1 has been added.]

3.3
rewirable appliance coupler
accessory so constructed that a cable or cord can be replaced

3.4
non-rewirable appliance coupler
accessory so constructed that it forms a complete unit with flexible supply cable or cord after connection and assembly by the manufacturer of the accessory

3.5
cord set
assembly consisting of one cable or cord fitted with one non-rewirable plug and one non-rewirable connector, intended for the connection of an electrical appliance or equipment to the electrical supply

SEE: Figure 1.

3.6
interconnection cord set
assembly consisting of one cable or cord fitted with one non-rewirable plug connector and one non-rewirable connector, intended for the interconnection between two electrical appliances

SEE: Figure 1

Note 1 to entry: The definition is based on that of IEC 60050-442:1998, 442-07-06.

3.7
integrated appliance coupler
appliance coupler which is formed by the housing or enclosure of the appliance or equipment and that cannot be tested separately

3.8
standardized appliance coupler
appliance coupler with dimensions in accordance with the standard sheets of IEC 60320-3

3.9
non-standardized appliance coupler
appliance coupler with dimensions not in accordance with the standard sheets of IEC 60320-3

3.10
base of a pin
part of the pin where it protrudes from the engagement face

3.11
retaining device
mechanical provision or arrangement which holds a connector in proper engagement with a corresponding appliance inlet and prevents its unintentional withdrawal

3.12
rated voltage (for accessories)
voltage assigned by the manufacturer for a specified operating condition of an accessory

[SOURCE: IEC 60050-442:1998, 442-01-03]

3.13
rated current (for accessories)
current assigned by the manufacturer for a specified operating condition of an accessory

[SOURCE: IEC 60050-442:1998, 442-01-02]

3.14
terminal (for accessories)
part of an accessory to which a conductor is attached, providing a re-usable connection

[SOURCE: IEC 60050-442:1998, 442-06-05]

3.15
termination
part of an accessory to which a conductor is permanently attached

[SOURCE: IEC 60050-442:1998, 442-06-06]

3.16
thread-cutting screw
screw having an interrupted thread which, by screwing in, makes a thread by removing material from the cavity

[SOURCE: IEC 60050-442:1998, 442-06-03]

3.17
type test
test of one or more devices made to a certain design to show that the design meets certain requirements

3.18
routine test
conformity test made on each individual item during or after manufacture

[SOURCE: IEC 60050-151:2001, 151-16-17]

4 General requirements

Appliance couplers shall be so designed and constructed that in normal use their performance is reliable and without danger to the user or to the surroundings.

A non-standardized appliance coupler shall comply with all safety requirements of this document and shall be tested together with its counterpart.

Compliance is checked by carrying out all the tests specified.