

# INTERNATIONAL STANDARD



Appliance couplers for household and similar general purposes –  
Part 2-3: Appliance couplers with a degree of protection higher than IPX0

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INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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## CONTENTS

FOREWORD.....	3
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions .....	7
4 General requirements .....	7
5 General notes on tests.....	7
6 Standard ratings .....	8
7 Classification.....	8
8 Marking .....	9
9 Dimensions and compatibility.....	11
10 Protection against electric shock.....	12
11 Provision for earthing.....	12
12 Terminals and terminations .....	12
13 Construction.....	14
14 Moisture resistance .....	16
15 Insulation resistance and electric strength.....	16
16 Forces necessary to insert and to withdraw the connector/appliance outlet .....	18
17 Operation of contacts.....	20
18 Resistance to heating of appliance couplers for hot conditions or very hot conditions.....	20
19 Breaking capacity .....	20
20 Normal operation .....	20
21 Temperature rise .....	20
22 Cords and their connection .....	21
23 Mechanical strength.....	24
24 Resistance to heat and ageing .....	26
25 Screws, current-carrying parts and connections.....	26
26 Clearances, creepage distances, <del>clearances</del> and <del>distances through</del> solid insulation.....	26
27 Resistance of insulating material to heat, fire and tracking.....	27
28 Resistance to rusting .....	27
29 Electromagnetic compatibility (EMC) requirements .....	27
Annex A (normative) Proof tracking test .....	28
Annex B ( <del>informative</del> normative) Routine tests for factory wired appliance couplers related to safety ( <del>protection against electric shock and correct polarity</del> ) .....	29
Annex C (normative) Test schedule.....	35
Annex D (informative) Comparison of typical conductor cross-sectional areas .....	36
Figure 101 – Example of apparatus for inadvertent disengagement (see 16.101).....	19
Table 101 – Pull forces for retaining devices .....	20
Table 10 – Types of cord for the rewirable connector/plug connector test.....	24

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**APPLIANCE COUPLERS FOR HOUSEHOLD  
AND SIMILAR GENERAL PURPOSES –****Part 2-3: Appliance couplers with a degree  
of protection higher than IPX0**

## FOREWORD

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International Standard IEC 60320-2-3 has been prepared by subcommittee 23G: Appliance couplers, of IEC technical committee 23: Electrical accessories.

This second edition cancels and replaces the first edition published in 1998 and Amendment 1:2004. This edition constitutes a technical revision.

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

- a) Aligned with IEC 60320-1:2015.
- b) The scope is extended to cover current ratings up to and including 16 A.
- c) The scope is extended to cover Class I appliance couplers.
- d) The scope is extended to cover appliance couplers for hot and very hot conditions.
- e) Added classification regarding the use of retaining devices.
- f) Added classification for indoor and outdoor use.

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

FDIS	Report on voting
23G/401/FDIS	23G/403/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

This Part 2-3 is to be used in conjunction with IEC 60320-1: *Appliance couplers for household and similar general purposes – Part 1: General requirements*. It was established on the basis of the third edition of that standard (2015).

The clauses of this standard supplement or modify the corresponding clauses in IEC 60320-1. When a particular subclause or annex of Part 1 is not mentioned in this Part 2-3, the subclause or annex of IEC 60320-1 applies as far as is reasonable. Where this standard states “addition”, “amendment” or “replacement”, the relevant requirement, test specification or explanatory matter in IEC 60320-1 is to be adapted accordingly.

Subclauses which are additional to those in Part 1 are numbered starting from 101.

In this particular standard the following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- explanatory matter: in smaller roman type.

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

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

- reconfirmed,
- withdrawn,
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# APPLIANCE COUPLERS FOR HOUSEHOLD AND SIMILAR GENERAL PURPOSES –

## Part 2-3: Appliance couplers with a degree of protection higher than IPX0

### 1 Scope

This clause of IEC 60320-1 applies ~~amended as follows~~ with the following addition:

~~This standard applies to two pole non-reversible appliance couplers for cold conditions for a.c. only, with a degree of protection against ingress of water higher than IPX0, with a rated voltage not exceeding 250 V and a rated current not exceeding 10 A for a 50 Hz or 60 Hz supply.~~

~~They are intended for the connection of the supply cord to portable electrical appliances of class II for household, commercial and light industrial use.~~

~~NOTE 1— This note of IEC 60320-1 applies.~~

~~NOTE 2— This note of IEC 60320-1 applies.~~

~~NOTE 3— This note of IEC 60320-1 applies.~~

~~NOTE 4— This note of IEC 60320-1 does not apply.~~

~~NOTE 5— This note of IEC 60320-1 applies.~~

#### *Additional notes:*

~~NOTE 6— IEC 60529 specifies the degree of protection against the ingress of water (IP code).~~

~~NOTE 7— IEC 60536 specifies the class of equipment.~~

This document applies to appliance couplers with a degree of protection against ingress of water higher than IPX0.

### 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.

This clause of IEC 60320-1 applies with the following additions:

IEC 60320-1:~~1994~~, *Appliance couplers for household and similar general purposes – Part 1: General requirements*

IEC 60320-3, *Appliance couplers for household and similar general purposes – Part 3: Standard sheets and gauges*

IEC 60529:~~1989~~, *Degrees of protection provided by enclosures (IP code)*



### 3 Terms and definitions

This clause of IEC 60320-1 applies with the following additions:

#### ~~3.101~~

##### ~~plug connector~~

~~appliance inlet intended to be attached by a cord to equipment~~

#### ~~3.102~~ 3.101

##### ~~accessible surface of an accessory~~

surface of an accessory that can be touched by means of the test ~~finger shown in figure 10 of IEC 60320-1~~ probe B of IEC 61032 (standard test finger), when the accessory is assembled as in normal use and in the following conditions:

- a) for connectors and appliance outlets: without the complementary accessory in engagement but with the cover in the open position;
- b) for plug connectors and appliance inlets: with the complementary accessory in the most unfavourable degree of engagement but such that electrical contact is made between the contacts (pins and tubes).

#### ~~3.103~~ 3.102

##### ~~cover~~

part that is accessible when the accessory is in normal use and removable only with the use of a tool, but which does not require the use of a tool to open it

#### ~~3.104~~

##### ~~type test sample~~

~~sample consisting of one or more similar specimens submitted for the purpose of a type test.~~

### 4 General requirements

This clause of IEC 60320-1 applies.

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### 5 General notes on tests

This clause of IEC 60320-1 applies ~~amended as follows~~.

~~5.1 This subclause of IEC 60320-1 applies.~~

~~5.2 Replacement:~~

~~Unless otherwise specified, the specimens are tested as delivered and under normal conditions of use, at an ambient temperature of 20 °C ± 5 °C; they are tested with a.c. at 50 Hz or 60 Hz.~~

~~The specimens used for the tests shall be substantially identical to normal production items in respect of all details which may affect the test results.~~

~~Non-rewirable accessories shall be submitted with a cord at least 1 m long. The cord used for testing rewirable accessories shall be a sheathed circular flexible cord complying with 60227 IEC 53 unless otherwise specified in a particular clause.~~

~~5.3 This subclause of IEC 60320-1 does not apply.~~

~~5.4 This subclause of IEC 60320-1 does not apply.~~

~~5.5 Replacement:~~

~~A total sample comprising 18 specimens, of any one type, shall be submitted to inspection and tests as given in the following table:~~

<del>Test</del>	<del>Number of specimens</del>	<del>Order of tests (clause and subclause references)</del>
<del>1 Visual inspection and manual examination</del>	<del>3</del>	<del>7, 8, 9, 10, 12, 13, 24.1, 25, 26, 28</del>
<del>2 General tests</del>	<del>3</del>	<del>14 (except 14.101), 15</del>
<del>3 General tests</del>	<del>3</del>	<del>22 (except 22.4), 16, 17, 19, 20, 21</del>
<del>4 Flexing test</del>	<del>3</del>	<del>22.4</del>
<del>5 Material test</del>	<del>3</del>	<del>23, 24.2, 14.101, 15.3</del>
<del>6 Material test</del>	<del>3</del>	<del>24.2, 27</del>

~~NOTE 1—If any particular test is repeated, as part of the normal sequence, this requirement is specified in the appropriate clause.~~

~~NOTE 2—With the agreement of the manufacturer the same specimen may be used for more than one test sequence.~~

~~5.6 This subclause of IEC 60320-1 applies.~~

~~5.7 Replacement:~~

~~If no accessory fails in the complete series of tests specified in 5.5, then the accessories of that type are considered to comply with this standard.~~

~~If one accessory in any group fails in the complete series of tests specified in 5.5, then the accessories of that type are considered to have failed to comply with this standard, unless that accessory can be shown not to be of normal production or design, in which case a further set of accessories shall be submitted to the test or tests in that group. If there is no failure in this retest then the accessories of that type shall be deemed to comply with this standard.~~

~~If more than one accessory fails in the complete series of tests specified in 5.5, the accessories of that type shall be deemed to have failed to comply with this standard.~~

**6 Standard ratings**

This clause of IEC 60320-1 applies ~~amended as follows~~.

~~6.1 This subclause of IEC 60320-1 applies.~~

~~6.2 Replacement:~~

~~The rated current is 10 A.~~

**7 Classification**

This clause of IEC 60320-1 applies ~~amended as follows~~ with the following additions:

~~7.1.1 Amendment:~~

~~Only the reference to cold conditions applies.~~

~~7.1.2 Amendment:~~

~~Only the reference to class II equipment applies.~~

~~7.2 Replacement:~~

~~Accessories are classified, according to the method of connecting the cord, as:~~

- ~~— rewirable accessories;~~
- ~~— non-rewirable accessories.~~

~~Additional subclause:~~

~~7.101 Add a new classification:~~

~~Accessories are classified, according to the ambient temperature for their use, as:~~

- ~~— appliance couplers for use in normal temperature;~~
- ~~— appliance couplers for use in low temperature ( $-15^{\circ}\text{C}$ ).~~

~~NOTE Additional tests are under consideration for appliance couplers for use in low temperature.~~

**7.101 Retaining devices:**

- a) with retaining device
- b) without retaining device

**7.102 Appliance coupler without retaining device.**

**NOTE** Only to be used where permitted by the end product standard.

## 8 Marking

This clause of IEC 60320-1 applies amended as follows:

~~8.1 Replacement:~~

~~Couplers, except for appliance inlets supplied with the equipment, shall be marked with:~~

- ~~a) name, trade mark or identification mark of the maker or responsible vendor;~~
- ~~b) number of this standard;~~
- ~~c) rated current;~~
- ~~d) rated voltage;~~
- ~~e) symbol for nature of supply;~~
- ~~f) IP rating;~~
- ~~g) type reference, which may be a catalogue number, code number, etc.~~

~~8.2 Replacement:~~

~~Appliance inlets shall be marked with the information given in 8.1 a) and 8.1 g) which need not be visible when installed for use outdoors.~~

~~NOTE—The marking on connectors and appliance inlets need not be visible when these are connected together.~~

~~8.3—This subclause of IEC 60320-1 applies.~~

~~8.4—This subclause of IEC 60320-1 applies with the following additional symbols:~~

~~Line ————— L~~

~~Neutral ————— N~~

~~Protected against splashing water — IPX4~~

~~NOTE—In the IP code the letter X, concerning protection against ingress of solid objects, is replaced by the relevant number.~~

~~8.5—This subclause of IEC 60320-1 does not apply.~~

~~8.6—Amendment:~~

~~This subclause of IEC 60320-1 applies except for the reference to earthing contact and earthing terminal.~~

~~8.7—This subclause of IEC 60320-1 applies.~~

~~8.8—This subclause of IEC 60320-1 applies.~~

8.2 Addition:

– IP rating.

8.4 Addition:

IP rating for example IPX4

NOTE 101 In the IP code the letter "X" is replaced by the relevant number.

Additional subclauses (following 8.8):

**8.101 Colours of outdoor cables**

Cords of non-rewirable accessories for outdoor use shall not be coloured black, green, white or brown.

**8.102 Instructions for retail sale**

For couplers intended for retail sale the supplier shall include an instruction leaflet, on or inside the sales package, with each coupler or accessory, clearly describing the extent of its suitability for use outdoors. Information regarding weather resistance shall be clearly visible to the purchaser and a recommendation shall be made that the cord to be fitted to the accessory should not be coloured black, green, white or brown. The instruction sheet shall include information stating that the plug connector shall be connected to the equipment and the connector to the mains supply side.

If the coupler or accessory is non-rewirable with a cord attached, each free end shall be marked for connection to the appliance or mains supply as appropriate, with guidance on the danger of an incorrect connection or of a connection to an appliance requiring the protection of an earth continuity conductor.

Except when a plug connector or appliance inlet fitted with a cord is supplied direct to a manufacturer for incorporation in other equipment, the free end of such an assembly shall have a label attached stating:

"The cord of this accessory must be properly connected to a piece of equipment before the appliance is energized."

If the coupler or accessory is rewirable, instructions shall be provided on the following:

- a) stripping lengths for sheath and insulation;
- b) identity of accessories to be connected to appliance or mains cord, as appropriate;
- c) connection of brown wire to terminal marked L and blue wire to terminal marked N;
- d) importance of correct assembly of cord anchorage including need for at least 3 mm of sheath to protrude beyond the clamping device;
- e) suitable for use with circular type cords only.

*Compliance with the requirements of 8.101 and 8.102 is checked by inspection.*

## 9 Dimensions and compatibility

This clause of IEC 60320-1 applies ~~amended as follows~~ with the following addition:

### ~~9.1 Replacement:~~

~~Couplers shall comply with the appropriate dimensions given in standard sheets A and B of this standard, except as permitted by 9.6.~~

~~Compliance is checked by measurement and, where relevant, by the use of the appropriate gauge(s) shown in figures 1 and 2.~~

~~When the gauge shown in figure 1 is used it shall be possible to insert the connector fully into the gauge with a force not exceeding 60 N. To verify correct and full insertion the gauge insert shall be provided with an aperture.~~

~~When the primary and supplementary gauges of figure 2 are used it shall be possible to insert the primary gauge fully into the appliance inlet with a force not exceeding 60 N. The supplementary gauge shall be pushed over the bar.~~

~~Planes shall be provided with the primary gauge to check pin and shroud lengths; successful engagement of the supplementary gauge checks the appliance inlet outer recess.~~

### ~~9.2 Replacement:~~

~~Provision for retaining the connector in the plug connector or appliance inlet shall comply with standard sheets A and B.~~

~~Compliance is checked by the tests of clause 16.~~

~~9.3 This subclause of IEC 60320-1 applies.~~

~~9.4 This subclause of IEC 60320-1 applies.~~

~~9.5 This subclause of IEC 60320-1 applies.~~

~~9.6 This subclause of IEC 60320-1 applies.~~

*Additional subclause (following 9.5):*

### 9.101 Retaining devices

For standardized appliance couplers the provision for retaining the connector in the plug connector or appliance inlet shall comply with the relevant standard sheets.

NOTE The relevant standard sheets can be found in IEC 60320-3.

*Compliance is checked by the tests of 16.101.*

For non-standardized appliance couplers the provision for retaining the connector in the plug connector or appliance inlet shall comply with the manufacturer's specifications.

## 10 Protection against electric shock

This clause of IEC 60320-1 applies amended as follows:

### ~~10.1 Replacement:~~

~~Appliance couplers shall be so designed that live parts of appliance inlets are not accessible when the connector is in partial or complete engagement.~~

~~Connectors shall be so designed that live parts are not accessible when the connector is properly assembled and wired as in normal use, but with the cover open.~~

~~Compliance is checked by inspection and, if necessary, by a test with the test finger shown in figure 10 of IEC 60320-1. This finger is applied in every possible position, an electrical indicator being used to show contact with the relevant parts. For connectors with shrouds, enclosures or bodies of elastomeric or thermoplastic material, the test finger is applied for  $30\text{ s} \pm 5\text{ s}$  with a force of  $20\text{ N} \pm 3\text{ N}$  at all points where yielding of the insulating material could impair the safety of the connector; this test is made at an ambient temperature of  $35\text{ °C} \pm 2\text{ °C}$ .~~

~~NOTE 1—An electrical indicator with a voltage between 40 V and 50 V is used to show contact with the relevant part.~~

~~NOTE 2—Conformity to the standard sheets ensures compliance with the requirements so far as the inaccessibility of contact members during insertion of a connector into an appliance inlet is concerned.~~

~~10.2 This subclause of IEC 60320-1 applies.~~

~~10.3 This subclause of IEC 60320-1 applies.~~

~~10.4 This subclause of IEC 60320-1 applies.~~

### 10.1 Addition after the second paragraph:

Test is performed with the cover open.

## 11 Provision for earthing

This clause of IEC 60320-1 ~~does not apply~~ applies.

## 12 Terminals and terminations

This clause of IEC 60320-1 applies ~~amended as follows~~ applies.