SLOVENSKI STANDARD
oSIST prEN IEC 60320-1:2020

01-november-2020

Aparatne spojke za gospodinjstva in podobne splošne namene - 1. del: Splošne zahteve

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

Gerätesteckvorrichtungen für den Hausgebrauch und ähnliche allgemeine Zwecke –Teil 1: Allgemeine Anforderungen

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

Ta slovenski standard je istoveten z: **prEN IEC 60320-1:2020**

ICS:

29.120.30	Vtiči, vtičnice, spojke	Plugs, socket-outlets, couplers

oSIST prEN IEC 60320-1:2020 **en,fr,de**

23G/447/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: **IEC 60320-1 ED4**	
DATE OF CIRCULATION: **2020-09-04**	CLOSING DATE FOR VOTING: **2020-11-27**
SUPERSEDES DOCUMENTS: **23G/440/CD, 23G/444A/CC**	

IEC SC 23G : APPLIANCE COUPLERS

SECRETARIAT: Sweden	SECRETARY: Mr Ingvar Eriksson
OF INTEREST TO THE FOLLOWING COMMITTEES: SC 34D,SC 48B,TC 61,TC 108	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☒ SAFETY

☒ SUBMITTED FOR CENELEC PARALLEL VOTING ☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

Attention IEC-CENELEC parallel voting

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

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

PROPOSED STABILITY DATE: 2020

NOTE FROM TC/SC OFFICERS:

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

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.

2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.

3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.

4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.

5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.

6) All users should ensure that they have the latest edition of this publication.

7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.

8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

DISCLAIMER
This Consolidated version is not an official IEC Standard and has been prepared for user convenience. Only the current versions of the standard and its amendment(s) are to be considered the official documents.

International Standard IEC 60320-1 has been prepared by subcommittee 23G: Appliance couplers, of IEC technical committee 23: Electrical accessories.

This fourth 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 the standard
b) The heating test from edition 2 is reintroduced in clause 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 clause 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

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

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.

Part 1 is to be used in conjunction with the following parts of the IEC 60320 series, if applicable.

IEC 60320-2-1, *Appliance couplers for household and similar general purposes – Part 2-1: Sewing machine couplers*

IEC 60320-2-3, *Appliance coupler for household and similar general purposes – Part 2-3: Appliance coupler with a degree of protection higher than IPX0*

IEC 60320-2-4, *Appliance couplers for household and similar general purposes – Part 2-4: Couplers dependent on appliance weight for engagement*

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

NOTE If these standards are referring to another edition of IEC 60320-1, that edition is applicable.

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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 part of IEC 60320 is also valid for appliance inlets/appliance outlets integrated or incorporated in appliances.

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

Appliance couplers complying with this part of IEC 60320 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 +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).

NOTE Requirements for d.c. are under consideration.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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, *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 (all parts), *Appliance couplers for household and similar general purposes*

IEC 60320-3:2014, *Appliance couplers for household and similar general purposes – Part 3: Standard sheets and gauges*

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 for household and similar use – 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 mm² up to 35 mm² (included)*

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

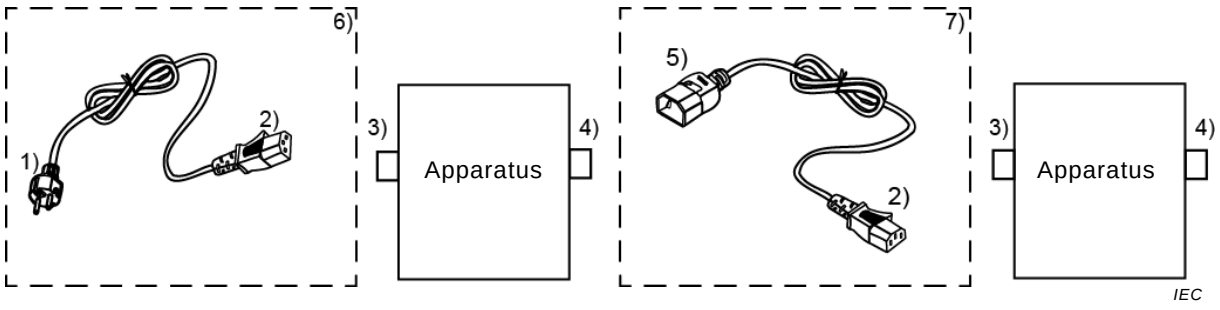
IEC 61058 (all parts), *Switches for appliances*

3 Terms and definitions

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

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

SEE: Figure 1.



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
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]

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]

3.2.2
appliance outlet
part of the interconnection coupler which is the part integrated 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]

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

3.4
non-rewirable accessory
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

[SOURCE: IEC 60050-442:1998, 442-07-06, modified – “a” has been changed to “one” in two places and a reference to Figure 1 has been added.]

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

3.8
incorporated appliance coupler
appliance coupler built in or fixed to an appliance or equipment, but that can be tested separately

3.9
base of a pin
part of the pin where it protrudes from the engagement face

3.10
retaining device
mechanical provision/arrangement which holds a connector in proper engagement with a corresponding appliance inlet and prevents its unintentional withdrawal

3.11
rated voltage
voltage assigned by the manufacturer for a specified operating condition of an accessory

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

3.12
rated current
current assigned by the manufacturer for a specified operating condition of an accessory

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

3.13
terminal
part of an accessory to which a conductor is attached, providing a re-usable connection

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

3.14
termination
part of an accessory to which a conductor is permanently attached

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

3.15
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]

3.16
type test
test of one or more devices made to a certain design to show that the design meets certain requirements

[SOURCE: IEC 60050-811:1991, 811-10-04]

3.17
routine test
test to which each individual device is subjected during and/or after manufacture to ascertain whether it complies with certain criteria

[SOURCE: IEC 60050-811:1991, 811-10-05]

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 the surroundings.

Non-standardized appliance couplers shall comply with all safety requirements of this standard and shall be tested together with its counterpart.

Compliance is checked by carrying out all the tests specified.

Appliance couplers according to this standard are not intended to be used in portable accessories covered by IEC TC 23.

5 General notes on tests

5.1 General

Tests shall be made to prove compliance with the requirements laid down in this standard, where applicable.

Tests are as follows:

– Type tests shall be made on representative samples of each accessory.

– Routine tests shall be conducted by the manufacturer and made on each accessory.

– Unless otherwise specified, the tests are carried out in the order of the clauses.

– Unless otherwise specified, appliance couplers are tested with their counterparts, complying with this standard.

– Appliance inlets and appliance outlets integrated or incorporated in an appliance or equipment are tested under the conditions of use of the equipment, the number of test samples then being the same as the number of test samples of equipment required according to the relevant standard for the equipment.

– Appliance couplers are considered to comply with this standard if there is not more than one failure of one test sample in one of the tests. If one test sample fails in a test, that test and those preceding which may have influenced the result of that test are repeated on another set of test samples, all of which shall then comply with the repeated tests.

Subclauses 5.2 to 5.3 are applicable to type tests. For number of samples and test sequences, see Annex C.

5.2 Test samples

Unless otherwise specified, the test samples are tested as delivered and under normal conditions assembled and installed as in normal use according to the manufacturer's instructions at an ambient temperature of 20 °C ± 5 °C; they are tested with a.c. at 50 Hz or 60 Hz. Tests shall not commence earlier than 168 h after manufacture.

Non-rewirable connectors/plug connectors, other than those forming part of a cord set, shall be submitted with a cord at least 1 m long.

5.3 Failures

In general, only the test which caused the failure need be repeated unless

a) a failure occurs to one of the three test samples when tested in accordance with Clauses 19, 20 or 21, in which case the tests are repeated from Clause 16 onwards; or

b) a failure occurs to one of the three test samples when tested in accordance with Clauses 22 or 23 (except 22.3), in which case the tests are repeated from Clause 18 onwards.

The applicant may submit, together with the first set of test samples, the additional set which may be wanted should one test sample fail. The testing station will then, without further request, test the additional test samples and will only reject if a further failure occurs. If the additional set of test samples is not submitted at the same time, a failure of one test sample will entail a rejection.

5.4 Routine tests

Routine tests are specified in Annex B.

6 Standard ratings

6.1 The maximum permitted rated voltage is 250 V.

6.2 The maximum permitted rated current is 16 A.

Preferred rated currents for appliance couplers are 0,2 A, 2,5 A, 6 A, 10 A and 16 A.

NOTE For details of standard type ratings refer to IEC 60320-3.

7 Classification of appliance couplers

7.1 According to maximum pin temperature at the base of the pins of the corresponding appliance inlet or the socket contacts of the corresponding appliance outlet:

a) appliance couplers for cold conditions, pin temperature not exceeding 70 °C;

b) appliance couplers for hot conditions, pin temperature not exceeding 120 °C;

c) appliance couplers for very hot conditions, pin temperature not exceeding 155 °C.

NOTE Appliance couplers for hot conditions can also be used under cold conditions; appliance couplers for very hot conditions can also be used under cold or hot conditions.

7.2 According to the type of equipment to be connected:

a) appliance couplers for class I equipment;

b) appliance couplers for class II equipment.

NOTE 1 For a description of the classes, see IEC 61140.

NOTE 2 Appliance couplers for 0,2 A are intended only for the connection of small hand-held class II equipment, if allowed by the relevant standard for the equipment.

7.3 Connectors/plug connectors according to the method of connecting the cord:

a) rewirable;

b) non-rewirable.

7.4 According to the ambient temperature

a) Appliance couplers for ambient temperatures up to +35 °C

b) Appliance couplers for ambient temperatures up to +90 °C. This classification also requires a classification according to 7.1 b) or 7.1 c).

8 Marking

8.1 General

Appliance couplers shall be marked with:

– name, trade mark or identification mark of the manufacturer or responsible vendor;

– type reference.

NOTE The type reference can be a catalogue number.