

SLOVENSKI STANDARD
SIST EN 60309-1:2000/A1:2008
01-februar-2008

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SIST EN 60309-1:2000/A11:2006

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Plugs, socket-outlets and couplers for industrial purposes - Part 1: General requirements
 (IEC 60309-1:1999/A1:2005 modified)

Stecker, Steckdosen und Kupplungen für industrielle Anwendungen - Teil 1: Allgemeine
 Anforderungen (IEC 60309-1:1999/A1:2005 modifiziert)

(standards.iteh.ai)

Prises de courant pour usages industriels - Partie 1: Règles générales (IEC 60309-
 1:1999/A1:2005 modifiée)

[SIST EN 60309-1:2000/A1:2008](https://standards.iteh.ai/catalog/standards/sist/9ee745b0-497d-4032-aef8-340474849e5a/sist-en-60309-1-2000-a1-2008)
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Ta slovenski standard je istoveten z: EN 60309-1:1999/A1:2007

ICS:

29.120.30 Xcã ãcã } ã^ ã [ħ^ Plugs, socket-outlets,
 couplers

SIST EN 60309-1:2000/A1:2008 en,fr

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English version

**Plugs, socket-outlets and couplers
for industrial purposes -
Part 1: General requirements
(IEC 60309-1:1999/A1:2005, modified)**

Prises de courant
pour usages industriels -
Partie 1: Règles générales
(CEI 60309-1:1999/A1:2005, modifié)

Stecker, Steckdosen und Kupplungen
für industrielle Anwendungen -
Teil 1: Allgemeine Anforderungen
(IEC 60309-1:1999/A1:2005, modifiziert)

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This amendment A1 modifies the European Standard EN 60309-1:1999; it was approved by CENELEC on 2006-11-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 23H/174/FDIS, future amendment 1 to IEC 60309-1:1999, prepared by SC 23H, Industrial plugs and socket-outlets, of IEC TC 23, Electrical accessories, was submitted to the IEC-CENELEC parallel vote.

A draft amendment, containing common modifications to IEC 60309-1:1999 and this future amendment 1, was prepared by CENELEC BTWG 112-1, Improvement of EN 60309-1 and EN 60309-2, and was submitted to the formal vote.

The combined texts were approved by CENELEC as amendment A1 to EN 60309-1:1999 on 2006-11-01.

This amendment supersedes EN 60309-1:1999/A11:2004.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2007-11-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2009-11-01

Annexes ZA and ZB have been added by CENELEC.

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Endorsement notice

The text of amendment 1:2005 to the International Standard IEC 60309-1:1999 was approved by CENELEC as an amendment to the European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

1 Scope

Add the following:

This European Standard applies to products intended to be used with cable with metric sizes (mm²) only.

Reference and requirements to AWG and MCM cables and voltages not used in Europe are present in the relevant IEC publication and they are reported in this standard for information only.

See Annex ZB for a list of references to AWG/MCM cables or non-European voltages which are excluded from this standard.

In this standard delete all reference to products of Series II. Values and corresponding requirements listed as Series II ratings are to be considered as "Other ratings".

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Add the new annex ZB.

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Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

Addition to Annex ZA of EN 60309-1:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 1456	— ¹⁾	Metallic coatings - Electrodeposited coatings of - nickel plus chromium and of copper plus nickel plus chromium	-	-
ISO 2081	— ¹⁾	Metallic coatings - Electroplated coatings of zinc on iron or steel	-	-
ISO 2093	— ¹⁾	Electroplated coatings of tin - Specification and - test methods	-	-

Annex ZB

(normative)

References to AWG/MCM cables and/or non-European voltages which are excluded from this standard

EN 60309-1 and A1
Subclause 5.1 (277 V)
Subclause 7.7 Note 2 of Table 2
Subclause 10.4 Table 3

¹⁾ Undated reference.

NORME
INTERNATIONALE
INTERNATIONAL
STANDARD

CEI
IEC

60309-1

1999

AMENDEMENT 1
AMENDMENT 1
2005-10

Amendement 1

Prises de courant pour usages industriels –

**Partie 1:
Règles générales**

Amendment 1

**Plugs, socket-outlets and couplers
for industrial purposes –**

**Part 1:
General requirements**

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
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Pour prix, voir catalogue en vigueur
For price, see current catalogue

FOREWORD

This amendment has been prepared by subcommittee 23H:Industrial plugs and socket-outlets, of IEC technical committee 23:Electrical accessories.

The text of this amendment is based on the following documents:

FDIS	Report on voting
23H/174/FDIS	23H/182/RVD

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

This amendment is published as an exception to IEC rule (Administrative Circular 190/AC/1996) limiting the size of an amendment to 15 % of the base publication

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the maintenance result 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.

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1 Scope

Replace the second paragraph by:

The list of preferred ratings is not intended to exclude other ratings.

Add after the third paragraph the following:

This standard applies to accessories with screwless type terminals or insulation piercing terminals, with a rated current up to and including 16 A for Series I and 20 A for Series II.

2 Definitions

Add the following new definitions:

2.18.7

screwless type terminal

a terminal for the connection and subsequent disconnection of one or more conductors, the connection being made, directly or indirectly, by other means than screws

NOTE Examples of screwless type terminals are given in Figure 14h.

2.18.8

insulation piercing terminal

IPT

a terminal for the connection and subsequent disconnection of one or more conductors, the connection being made by piercing, boring through, cutting through, removing, displacing or making ineffective in some other manner the insulation of the conductor(s) without previous stripping

NOTE 1 The removal of the sheath of the cable, if necessary, is not considered as a previous stripping.

NOTE 2 Examples of IPT are given in Figure 14i.

3 Normative reference

Add the following:

ISO 2081, *Metallic coatings – Electroplated coatings of zinc on iron or steel*

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

ISO 1456, *Metallic coatings – Electrodeposited coatings of nickel plus chromium and of copper plus nickel plus chromium*

4 General

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4.1 General requirements (standards.iteh.ai)

Add, after third paragraph, the following:

Combinations of plugs, socket-outlets, appliance inlets and connectors that are intended for use together shall comply with the requirements of this standard and the relevant standard sheet, if any.

4.2 General notes on test

4.2.1 Add the following new sentence:

When a part or a component is incorporated in a device or accessory according to IEC 60309 standard, and if this part or component meets an appropriate IEC standard, then no further test(s) or requirement(s) shall be required for this part or component, unless it is being used in a way significantly different from the intent of its own standard.

4.2.4 Replace the existing text by the following:

4.2.4 Three samples are subjected to all the tests, except if necessary for the tests of 11.1.4 and Clause 29 where, for each clause, one new set of samples is tested. If, however, the tests of Clauses 20, 21 and 22 have to be made with both d.c. and a.c., the tests with a.c. are made on three additional samples.

5 Standard ratings

5.2 Add, after Table 1, the following note:

NOTE Ratings referred as “Other ratings” in this standard are given for test purpose only, when the manufacturer has not used the preferred ratings.

6 Classification

6.1.2 *Replace the existing text by the following:*

6.1.2 according to degrees of protection in accordance with IEC 60529

Add the following note:

NOTE According to IEC 60529, an accessory designated with second characteristic numeral 7 or 8 is only suitable for immersion. For protection against exposure to water jets, additional testing is required according to second characteristic numeral 5 or 6 and then the product should be marked accordingly.

Add the following new classifications:

6.1.6 according to the type of terminals

- with screw type terminals;
- with screwless type terminals;
- with insulation piercing terminals.

6.1.7 according to the type of conductors for screwless type and insulation piercing terminals

- for solid conductors only;
- for rigid (both solid and stranded) conductors only;
- for flexible conductors only;
- for rigid (both solid and stranded) and flexible conductors.

<https://standards.iteh.ai/catalog/standards/sist/9ee745b0-497d-4032-aefa-340474849e5a/sist-en-60309-1-2000-a1-2008>

7 Marking

7.2 *Delete 7th and 8th symbols (one drop in a triangle and two drops) and the relevant description.*

Replace the first paragraph after the symbols by the following:

For IP codes, the two characteristic numerals (XX) shall be specified.

Add the following new subclauses:

7.8 Accessories with screwless type terminals shall be marked with the length of insulation to be removed before insertion of the conductor into the terminal.

7.9 Terminals according to 6.1.7 shall be marked as follows:

- terminals declared for solid conductors only with the letter(s) “s” or “sol”;
- terminals declared for rigid conductors only (both solid and stranded) with the letter “r”
- terminals declared for flexible conductors only with the letter “f”;
- terminals declared for rigid (both solid and stranded) and flexible conductors need not be marked.

This marking shall appear where it is practical on the end product or on the smallest package unit or in the manufacturer's technical documentation and/or catalogues.

7.10 For terminals, the connection and disconnection procedures, if necessary, shall be indicated on the product, on the smallest package unit or on the manufacturer's documentation.

8 Dimensions

8.1 *Replace the existing text by the following:*

Accessories shall comply with the appropriate standard sheets, if any. When standard sheets do not exist, accessories shall comply with manufacturer's specifications.

8.2 *Replace the existing test by the following:*

It shall not be possible to engage plugs or connectors with socket-outlets or appliance inlets having different ratings, or having contact combinations allowing improper connection.

In addition, the design shall be such that improper connections shall not be possible between:

- the earth and/or pilot plug contact and a live socket-outlet contact, or a live plug contact and the earth and/or pilot socket-outlet contact;
- the phase plug contacts and the neutral socket-outlet contact, if any;
- the neutral plug contact and a phase socket-outlet contact.

Connection of single-phase or three-phase plugs into three-phase + neutral socket-outlets are permitted where the above conditions are met.

Compliance is checked by inspection.

10 Provision for earthing

Replace Table 3 by the following:

Table 3 – Size for connectable conductors

Rating of the accessory				Internal connection ^{1) 5)}				External earthing connection if any	
Voltage V	Current A			Flexible cables for plugs and connectors Solid or stranded cables for appliance inlets ²⁾		Solid or stranded cables for socket-outlets ^{2) 6)}			
	Series I	Series II	Other ratings	Series I mm ²	Series II AWG/MCM ³⁾	Series I mm ²	Series II AWG/MCM ³⁾	Series I mm ²	Series II AWG/MCM ³⁾
Not exceeding 50	16 32	20 30		4 to 10 4 to 10	12 to 8 12 to 8	4 to 10 4 to 10	12 to 8 12 to 8		
Exceeding 50	16 32 63 125 250	20 30 60 100 200	6	0,75 to 1	18 to -	0,75 to 1,5	18 to 16	2,5	14
			10	1 to 1,5	- to 16	1 to 1,5	- to 16	2,5	14
				1 to 2,5	16 to 12	1,5 to 4	16 to 12	6	10
			25	1,5 to 4	16 to 12	2,5 to 6	14 to 10	6	10
				2,5 to 6	14 to 10	2,5 to 10	14 to 8	10	8
			40	4 to 10	12 to 8	4 to 16	12 to 6	10	8
			50	4 to 10	12 to 8	4 to 16	12 to 6	16	6
				6 to 16	10 to 6	6 to 25	10 to 4	25	4
			80	10 to 25	8 to 4	16 to 35	6 to 2	25	4
			90	10 to 25	8 to 4	16 to 35	6 to 2	25	4
				16 to 50	6 to 0	25 to 70	4 to 00	25	4
				150	25 to 70	4 to 00	35 to 95	2 to 000	25
		160	25 to 70	4 to 00	35 to 95	2 to 000	25	4	
	250	200	70 to 150	00 to 0000	70 to 185 ⁴⁾	00 to 250	25	4	

¹⁾ Terminal for pilot conductors, if any, shall allow the connection of conductors having a cross-sectional area of 1 mm².

²⁾ Classification of conductors: according to IEC 60228.

³⁾ The nominal cross-sectional areas of conductors are given in square millimetres (mm²). AWG/MCM values are considered as equivalent to mm² for the purpose of this standard.

AWG: American Wire Gauge is a system of identifying wires in which the diameters are in geometric progression between size 36 and size 0000.

MCM: Mille Circular Mils denotes circle surface area. 1 MCM = 0,5067 mm².

⁴⁾ 150 mm² for 200 A accessories of series II.

⁵⁾ For ratings other than those above, the cross-sectional area(s) of the conductors may be that specified by the manufacturer.

⁶⁾ For socket-outlets declared for flexible conductors only, these values apply.