

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 2
AMENDEMENT 2

Plugs, socket-outlets and couplers for industrial purposes –
Part 1: General requirements

(standards.iteh.ai)

Prises de courant pour usages industriels –
Partie 1: Règles générales

[IEC 60309-1:1999/AMD2:2012](https://standards.iteh.ai/catalog/standards/sist/8e04f5d6-77ac-460d-8290-90c537c2fad5/iec-60309-1-1999-amd2-2012)

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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/282/FDIS	23H/285/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.

The committee has decided that the contents of this amendment and the base publication 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

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1 Scope

Replace the first paragraph by:

This standard applies to plugs and socket-outlets, cable couplers and appliance couplers, with a rated operating voltage not exceeding 1 000 V d.c. or a.c. and 500 Hz a.c., and a rated current not exceeding 800 A, primarily intended for industrial use, either indoors or outdoors.

These accessories are intended to be installed by instructed persons (IEC 60050-195:1998, Amendment 1:2001, 195-04-02) or skilled persons (IEC 60050-195:1998, Amendment 1:2001, 195-04-01) only.

Replace the fourth paragraph – introduced by Amendment 1 – by:

This standard applies to accessories with screwless type terminals or insulation piercing terminals, with a rated current up to and including 32 A for series I and 30 A for series II.

3 Normative references

Replace IEC 60695-2-1:1994 by:

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

Add the following references:

IEC 60309-4, *Plugs, socket-outlets and couplers for industrial purposes – Part 4: Switched socket-outlets and connectors with or without interlock*

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

4.1 General requirements

Add a new fourth paragraph:

Accessories shall have a minimum degree of protection IP23 according to IEC 60529.

5.1

Add the following new values

750 V
1 000 V

5.2

Add the following new values in Table 1:

315	300
400	350
630	500
800	600

Add after Table 1 the following Note 2:
<https://standards.iteh.ai/catalog/standards/sist/8e04f5d6-77ac-460d-8290-90c537c2fad5/iec-60309-1-1999-amd2-2012>

NOTE 2 This table does not provide correspondence between series I and series II values. It is only a list of preferred ratings

6.1.2

Replace the text introduced by Amendment 1 by the following:

"according to degrees of protection in accordance with IEC 60529 (with a minimum IP23, see 4.1)"

Add the following new subclause:

6.1.8 according to accessibility to live parts:

- accessories providing for IPXXB
- accessories providing for IP2X
- accessories providing for IPXXD
- accessories providing for IP4X

7.1

Replace, in the third dashed item, "alternative" by "alternating".

Replace the seventh dashed item by "degree of protection".

7.2

Replace the second paragraph after the list of symbols by:

Marking of degree(s) of protection on plugs and appliance inlets is only valid when those are in engagement with a complementary accessory or with an attached cap, if any.

7.3

Replace in the third paragraph:

“the symbol for degree of protection, if required”

by:

“the degree of protection”.

7.6

Replace the existing third sentence by:

After the humidity treatment of Clause 18, the marking is rubbed by hand for 15 s with a piece of cloth soaked in water and again for 15 s with a piece of cloth soaked in petroleum spirit.

It is recommended that the petroleum spirit used consist of a solvent hexane with an aromatic content of maximum 0,1 volume percentage, a Kauri-Butanol value of approximately 29, an initial boiling point of approximately 65 °C, a dry point of approximately 69 °C and a density of approximately 0,68 g/cm³.



Table 2

Replace the value “690” by “1 000” [IEC 60309-1:1999/AMD2:2012](https://standards.iteh.ai/catalog/standards/sist/8e04f5d6-77ac-460d-8290-90c537c2fad5/iec-60309-1-1999-amd2-2012)

7.9

Replace the last paragraph of this subclause – introduced by Amendment 1 – by:

This marking shall appear on the accessory. It may also appear on the accompanying instruction sheet, the smallest package unit or the manufacturer's documentation, if any.

7.10

Replace the existing text of this subclause – introduced by Amendment 1 – by:

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

Table 3 – Size for connectable conductors

Add the following new values at the end of table, previously modified by Amendment 1:

Exceeding 50	315	300	95 to 150	000 to 300	120 to 185	250 to 350	25	4
		350	120 to 185	250 to 350	150 to 240	300 to 500	35	3
	400		150 to 240	300 to 500	185 to 300	350 to 600	35	3
		500	185 to 300	350 to 600	240 to 400	500 to 800	35	2
	630	600	240 to 400	500 to 800	300 to 500	600 to 1 000	50	1
	800		300 to 500	600 to 1 000	400 to 630	800 to 1 250	50	0

11.1.1

Add after the second paragraph of this subclause introduced by Amendment 1:

Compliance is checked by inspection.

Table 4-2

Add the following new values at the end of the table – modified by Amendment 1:

240,0	28,6	464	20,0
300,0	28,6	464	22,7
400,0	31,8	495	50,0
500,0	38,1	572	50,0
630,0	44,5	660	70,3

Table 4-3

Add the following new values at the end of table – modified by Amendment 1:

240	578
300	578
400	690
500	778
630	965

12 Interlocks

<https://standards.iteh.ai/catalog/standards/sist/8e04f5d6-77ac-460d-8290-90c537c2fad5/iec-60309-1-1999-amd2-2012>

Replace the existing clause by:

12.1 Accessories with a rated current above 250 A or accessories not intended to make and break under load shall be provided with an interlock according to IEC 60309-4 or with the provision for an interlock to be used according to IEC 60309-4.

Requirements for interlocks are given in IEC 60309-4.

Compliance is checked by inspection and by the tests of IEC 60309-4.

12.2 Replace the existing text of this subclause by "Void".

12.3 Replace the existing text of this subclause by "Void".

15.8

Replace the existing first paragraph by:

Socket-outlets having a rated operating voltage exceeding 50 V a.c. or 120 V d.c. shall be provided with an earthing contact.

16.9

Replace the existing first paragraph by:

Plugs and connectors having a rated operating voltage exceeding 50 V a.c. or 120 V d.c. shall be provided with an earthing contact.

17.3

Replace the existing first paragraph by:

Appliance inlets having a rated operating voltage exceeding 50 V a.c. or 120 V d.c. shall be provided with an earthing contact.

17.4

Replace the existing first paragraph by:

Appliance inlets shall not have specific means to allow the wiring of more than one connector (see also 16.10).

18.2

Delete the last paragraph.

Add after the first paragraph – introduced by Amendment 1 – the following:

When the first characteristic numeral is 3 or 4, and for degrees of protection up to and including IPX4, where a drain hole is provided, the protection is satisfactory if the full diameter of the probe does not pass through any opening other than through drain holes, in which case the probe shall not touch live parts within the enclosure.

20 Breaking capacity

[IEC 60309-1:1999/AMD2:2012](http://standards.iteh.ai/catalog/standards/sist/8e04f5d6-77ac-460d-8290-90c537c2fad5/iec-60309-1-1999-amd2-2012)

<http://standards.iteh.ai/catalog/standards/sist/8e04f5d6-77ac-460d-8290-90c537c2fad5/iec-60309-1-1999-amd2-2012>

Replace the seventeenth paragraph by:

The test is made using the connections shown in Figure 5. For two-pole accessories the selector switch C, connecting the metal support and the accessible metal parts to one of the poles of the supply, is operated after half the number of strokes; for three-pole and three-pole plus neutral accessories, the selector switch C is operated after one-third of the number of strokes, and again after two-thirds of the number of strokes, so as to connect each pole in turn.

Table 6 – Breaking capacity

Add the following new values at the end of Table 6:

315	300 350	from 251 to 800	NA	NA	NA
400	500 600				
630					
800					

Table 7 – Normal operation

Add the following new values at the end of Table 7:

315	300						
-	350						
400	-	251 to 800	NA	NA	125	NA	125
-	500						
630	600						
800							

Table 8

Add the following new values at the end of the existing table – introduced by Amendment 1:

315	300		rated current	150	185
	350		rated current	185	240
400			rated current	240	300
	500		rated current	300	400
630	600		rated current	400	500
800			rated current	500	630

Replace the existing three indents and paragraph immediately after Table 8 by:
(standards.iteh.ai)

The duration of the test is:

- IEC 60309-1:1999/AMD2:2012
<https://standards.iteh.ai/catalog/standards/sist/60309-1-1999-77ad-460d-8290-90c537c2fad5/iec-60309-1-1999-amd2-2012>
- 1 h for accessories having a rated current not exceeding 32 A;
 - 2 h for accessories having a rated current exceeding 32 A but not exceeding 125 A;
 - 3 h for accessories having a rated current exceeding 125 A but not exceeding 250 A.

For accessories having a rated current exceeding 250 A, the test shall continue until thermal stabilization is attained. Thermal stabilization is considered to have occurred when three successive readings, taken at intervals of not less than 10 minutes, show no further increases of more than 1 K.

Table 9

Add the following new values at the end of the existing table – introduced by Amendment 1:

315	300		Under consideration	150
	350		Under consideration	185
400			Under consideration	240
	500		Under consideration	300
630	600		Under consideration	400
800			Under consideration	500

Table 10

Add the following new values at the end of the existing table – introduced by Amendment 1:

	315	300		66	150	-	-	_2)	65,5	_2)
		350			185	-	-	_2)	_2)	_2)
	400				240	-	-	_2)	_2)	_2)
		500			300	-	-	_2)	_2)	_2)
	630	600			400	-	-	_2)	_2)	_2)
	800				500	-	-	_2)	_2)	_2)

Table 11

Add the following new values at the end of the existing table – introduced by Amendment 1:

315	300		400	4,0
	350		400	4,0
400			500	4,5
	500		500	4,5
630	600		600	5,0
800			600	5,0

[IEC 60309-1:1999/AMD2:2012](https://standards.iteh.ai/catalog/standards/sist/8e04f5d6-77ac-460d-8290-90c537c2fad5/iec-60309-1-1999-amd2-2012)

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Table 12

Add the following new values at the end of the existing table – introduced by Amendment 1:

315	300		4
	350		4
400			4
	500		4
630	600		4
800			4

Table 16

Replace the heading of the existing last column 5 by “Over 500 up to and including 690”.

Add the following new column 6 and footnote:

	Over 690 up to and including 1 000 ^a
	16
	10
	8
	8
	10
	10
	6
	5

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^a Alternatively, creepage distances may be according to IEC 60664-1.

27 Resistance to heat, fire and tracking

Replace the title of this clause by:

27 Resistance to heat, to fire and to tracking**27.3**

Replace the existing text of this subclause by the following:

Parts of insulating material are subjected to a ball-pressure test according to IEC 60695-10-2.

The test is made in a heating cabinet at a temperature of: