
Connecting devices for low-voltage circuits for household and similar purposes - Part 2-3: Particular requirements for connecting devices as separate entities with insulating piercing clamping units (IEC 998-2-3:1991)

Connecting devices for low-voltage circuits for household and similar purposes -- Part 2-3: Particular requirements for connecting devices as separate entities with insulation piercing clamping units

Verbindungsmaterial für Niederspannungs-Stromkreise für Haushalt und ähnliche Zwecke -- Teil 2-3: Besondere Anforderungen für Verbindungsmaterial als selbständige Betriebsmittel mit Schneidklemmstellen

[SIST EN 60998-2-3:1996](https://standards.iteh.ai/catalog/standards/sist/44ed849e-4a35-4280-acdb-1996-01-01/iec-998-2-3-1991)

Dispositifs de connexion pour circuits basse tension pour usage domestique et analogue -- Partie 2-3: Règles particulières pour dispositifs de connexion en tant que parties séparées avec organes de serrage à perçage d'isolant

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EUROPEAN STANDARD

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ENGLISH VERSION

Connecting devices for low-voltage circuits for household and similar purposes
Part 2-3: Particular requirements for connecting devices as separate entities with insulation piercing clamping units
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Dispositifs de connexion pour circuits basse tension pour usage domestique et analogue
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Verbindungsmaterial für Niederspannungs-Stromkreise für Haushalt und ähnliche Zwecke
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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 European Standard 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.

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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 CENELEC questionnaire procedure, performed for finding out whether or not the International Standard IEC 998-2-3:1991 could be accepted without textual changes, has shown that no common modifications were necessary for the acceptance as European Standard.

The reference document was submitted to the CENELEC members for formal vote and was approved by CENELEC as EN 60998-2-3 on 22 September 1993.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1994-09-01
- latest date of withdrawal of conflicting national standards (dow) 1997-09-01

For products which have complied with the relevant national standard before 1997-09-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2002-09-01.

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ENDORSEMENT NOTICE

SIST EN 60998-2-3:1996

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The text of the International Standard IEC 998-2-3:1991 was approved by CENELEC as a European Standard without any modification.

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1991-10

Dispositifs de connexion pour circuits basse tension pour usage domestique et analogue

Partie 2-3:

Règles particulières pour dispositifs de connexion en tant que parties séparées avec organes de serrage à perçage d'isolant

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Connecting devices for low voltage circuits for household and similar purposes

Part 2-3:

Particular requirements for connecting devices as separate entities with insulation piercing clamping units

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

CONNECTING DEVICES FOR LOW VOLTAGE CIRCUITS
FOR HOUSEHOLD AND SIMILAR PURPOSESPart 2-3: Particular requirements for connecting devices
as separate entities with insulation piercing clamping units

FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

STANDARD PREVIEW

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This standard has been prepared by Sub-Committee 23F: Connecting devices, of IEC Technical Committee No. 23: Electrical accessories.

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It forms the first edition of IEC 998-2-3 and supersedes Publication 685-2-3 (1983).

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

Six Months' Rule	Report on Voting
23F(CO)35	23F(CO)45

Full information on the voting for the approval of this standard can be found in the Voting Report indicated in the above table.

In this standard, the following print types are used.

- Requirements proper: in roman type.
- *Test specifications: in italic type.*
- Explanatory matter: in smaller roman type.

CONNECTING DEVICES FOR LOW VOLTAGE CIRCUITS FOR HOUSEHOLD AND SIMILAR PURPOSES

Part 2-3: Particular requirements for connecting devices as separate entities with insulation piercing clamping units

1 Scope

This clause of Part 1 is applicable except as follows:

Addition:

This standard applies to connecting devices with insulation piercing clamping units primarily suitable for connecting insulated unprepared conductors.

In the connecting operation the insulation of the conductor is pierced, bored through, cut through, removed, displaced or made ineffective in some other manner at the point or points of contact.

NOTE - In the text of this standard, connecting devices with insulation piercing clamping units are referred to as IPCD's (insulation piercing connecting devices).

2 Normative references

SIST EN 60998-2-3:1996

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This clause of Part 1 is applicable.

3 Definitions

This clause of Part 1 is applicable except as follows:

Additional definitions:

3.101 *Insulation piercing connecting device (IPCD)*

A connecting device for the connection and possible disconnection of one conductor or the interconnection of two 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 - The removal of the sheath of the cable, if necessary, is not considered as a previous stripping.

Examples of IPCD's are given in figure 103.

3.102 Reusable IPCD

An IPCD that can be used more than once.

3.103 Non reusable IPCD

An IPCD that can be used only once, which means that it is not intended to be reused.

3.104 Non-removable IPCD

An IPCD that can be used only once and can only be removed from the circuit by cutting the conductors.

4 General

This clause of Part 1 is applicable.

5 General notes on tests

This clause of Part 1 is applicable except as follows:

5.3 Replacement:

The tests are carried out in the sequence listed for each set in Annex AA.

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5.4 Replacement:

The necessary number of new samples to be submitted to the tests are split into sets as detailed in Annex AA.

6 Main characteristics

This clause of Part 1 is applicable.

7 Classification

This clause of Part 1 is applicable except as follows:

Additional sub-clauses:

7.101 Classification according to reusability and removability.

- reusable IPCD;
- non-reusable IPCD;
- non-removable IPCD.

7.102 Classification according to the method to make the connection

- with a general purpose tool;
- with a special tool;
- by hand.

7.103 Classification according to conductor type

- IPCD's for rigid solid conductors only;
- IPCD's for rigid (solid or stranded) conductors only;
- IPCD's for flexible conductors only;
- IPCD's for rigid (solid and/or stranded) and flexible conductors.

7.104 Classification according to conductor insulation

- IPCD's for conductors according to IEC Publication 227;
- IPCD's for conductors according to IEC Publication 245;
- IPCD's for special conductors specified by the manufacturer.

7.105 Classification according to the number of cores in the conductor to be connected

- IPCD's for one core conductors;
- IPCD's for multicore cables or cords.

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8 Marking

This clause of Part 1 is applicable except as follows:

Additional sub-clause:

8.101 The following shall be indicated on the smallest package unit:

- If the IPCD is non-reusable or non-removable (7.101) (absence of marking indicates the IPCD is reusable);
- the connection and disconnection procedure, if necessary (e.g. screw torque values if greater than stated in table 102);
- the combinations of cross-sectional areas and types of conductors according to the classification of 7.103, 7.104 and 7.105 for which the IPCD is designed. (Method of connection according to 7.102 if necessary.)

NOTE - The manufacturer shall describe the types of cable and of insulation suitable for his system if the contact pressure is being transmitted through this conductor insulation.

9 Protection against electric shock

This clause of Part 1 is applicable.

10 Connection of conductors

This clause of Part 1 is applicable except as follows:

Additional sub-clauses:

10.101 An IPCD shall accept one or more unprepared conductors of the same or of different nominal cross-sectional areas, rigid (solid or stranded) and flexible, as declared by the manufacturer.

10.102 The relationship between the rated connecting capacity of clamping units and connectable conductors as well as data on the diameters of conductors are given in table 101.

Table 101 - Rated connecting capacity and connectable conductors

Rated connecting capacity	Connectable conductors and their theoretical diameter									
	Metric					AWG				
	Rigid		Flexible			Rigid		Flexible		
	solid	stranded				+ solid	+ Class B stranded		++ Classes I, K, M stranded	
mm ²	mm ²	Dia. mm	Dia. mm	mm ²	Dia. mm	Gauge	Dia. mm	Dia. mm	Gauge	Dia. mm
0,5	0,5	0,9	1,1	0,5	1,1	20	0,85	0,97	20	1,02
0,75	0,75	1,0	1,2	0,75	1,3	18	1,07	1,23	18	1,28
1,0	1,0	1,2	1,4	1,0	1,5	—	—	—	—	—
1,5	1,5	1,5	1,7	1,5	1,8	16	1,35	1,55	16	1,60
2,5	2,5	1,9	2,2	2,5	2,3*	14	1,71	1,95	14	2,08
4,0	4,0	2,4	2,7	4,0	2,9*	12	2,15	2,45	12	2,70
6,0	6,0	2,9	3,3	4,0	2,9*	10	2,72	3,09	—	—
10,0	10,0	3,7	4,2	6,0	3,9	8	3,43	3,89	10	3,36
16,0	16,0	4,6	5,3	10,0	5,1	6	4,32	4,91	8	4,32
25,0	25,0	—	6,6	16,0	6,3	4	5,45	6,18	6	5,73
35,0	35,0	—	7,9	25,0	7,8	2	6,87	7,78	4	7,26

* Dimensions for Class 5 flexible conductors only, according to IEC Publication 228A.

Diameters of the largest rigid and flexible conductors are based on IEC Publication 228A, table 1 and, for AWG conductors, on ASTM B172-71, ICEA Publication S-19-81, ICEA Publication S-66-524 and ICEA Publication S-68-516.

+ Nominal diameter + 5 %

++ Largest diameter for any of the three classes, I, K, M + 5%.