

Connecting devices for low voltage circuits for household and similar purposes —

Part 2-4: Particular requirements for twist-on connecting devices

The European Standard EN 60998-2-4:2005 has the status of a
British Standard

ICS 29.120.20

National foreword

This British Standard is the official English language version of EN 60998-2-4:2005. It was derived by CENELEC from IEC 60998-2-4:2004. It supersedes BS EN 60998-2-4:1993 which will be withdrawn on 1 March 2008.

The CENELEC common modifications have been implemented at the appropriate places in the text. The start and finish of each common modification is indicated in the text by tags **Ⓒ** **Ⓒ**. Where a common modification has been introduced by amendment, the tags carry the number of the amendment. For example, the common modifications introduced by CENELEC amendment A11 are indicated by **Ⓒ11** **Ⓒ11**.

The UK participation in its preparation was entrusted to Technical Committee PEL/23/2, Connecting devices, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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Cross-references

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 22, an inside back cover and a back cover.

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**Connecting devices for low voltage circuits
for household and similar purposes
Part 2-4: Particular requirements for twist-on connecting devices
(IEC 60998-2-4:2004, modified)**

Dispositifs de connexion pour circuits
basse tension pour usage domestique
et analogue
Partie 2-4: Règles particulières pour
dispositifs de connexion par épissure
(CEI 60998-2-4:2004, modifiée)

Verbindungsmaterial für
Niederspannungs-Stromkreise für
Haushalt und ähnliche Zwecke
Teil 2-4: Besondere Anforderungen an
Drehklemmen
(IEC 60998-2-4:2004, modifiziert)

This European Standard was approved by CENELEC on 2005-03-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard 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 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.

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

CENELEC

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

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Foreword

The text of the International Standard IEC 60998-2-4:2004, prepared by SC 23F, Connecting devices, of IEC TC 23, Electrical accessories, together with common modifications prepared by the CENELEC Reporting Secretariat SR 23F, was submitted to the formal vote and was approved by CENELEC as EN 60998-2-4 on 2005-03-01.

This European Standard supersedes EN 60998-2-4:1993.

It introduces an additional explanation for the temperature cycling test.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2006-03-01
- latest date by which the national standards conflicting with
the EN have to be withdrawn (dow) 2008-03-01

This Part 2-4 is intended to be used in conjunction with EN 60998-1:2004.

It supplements or modifies the corresponding clauses of EN 60998-1 so as to convert it into the European Standard: *Particular requirements for twist-on connecting devices*.

Where a particular subclause of Part 1 is not mentioned in this Part 2-4, that subclause applies as far as is reasonable. Where this Part 2-4 states "addition", "modification" or "replacement", the relevant text of Part 1 is to be adapted accordingly.

In this standard

a) the following print types are used:

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

b) the following numbering system is used:

- subclauses and figures which are additional to those in Part 1 are numbered starting from 101,
- additional annexes are lettered AA, BB, etc.,
- annexes and notes which are additional to those in IEC 60998-2-4 are prefixed with the letter "Z".

Endorsement notice

The text of the International Standard IEC 60998-2-4:2004 was approved by CENELEC as a European Standard with agreed common modifications.

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CONNECTING DEVICES FOR LOW-VOLTAGE CIRCUITS FOR HOUSEHOLD AND SIMILAR PURPOSES –

Part 2-4: Particular requirements for twist-on connecting devices

1 Scope

Replacement:

This International Standard applies to twist-on connecting devices for connecting two or more unprepared rigid and/or flexible copper conductors having a cross-sectional area of 0,5 mm² up to and including 16 mm² and complying with IEC 60228, the total cross-sectional area of the connected conductors not exceeding 35 mm².

It covers low voltage circuits up to 1 000 V a.c. and 1 500 V d.c. where electrical energy is utilized for household and similar purposes.

This standard covers TOCDs primarily designed for application by hand. However, certain TOCDs, for example for large cross-sections, may require the use of a tool designed for that particular TOCD.

NOTE Z1 See Annex ZB for special national conditions.

2 Normative references

This clause of Part 1 is applicable.

3 Terms and definitions

This clause of Part 1 is applicable, except as follows:

Additional definitions:

3.101

twist-on connecting device

TOCD

terminal which is twisted on the ends of two or more conductors

3.102

range of TOCD's connecting capacity

the smallest and the largest individual conductors (expressed in mm² ~~text deleted~~) used in pairs of equal size capable of being safely connected as specified by the manufacturer. This does not exclude the use of more than two conductors in the TOCD or the use of conductors of sizes outside the specified range of connecting capacity.

3.103

gripping dimension

diameter

maximum dimension of the TOCD perpendicular to the aperture for the conductors (see Figure 101).

4 General

This clause of Part 1 is applicable.

5 General notes on tests

This clause of Part 1 is applicable, except as follows:

5.4 Replacement:

The necessary number of new samples to be submitted to the tests is divided into sets as detailed in Table 101.

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

Table 101 – Number of new samples and sequence applicable to the tests

Sets	Number of new samples per set	Clauses or subclauses	Test sequence
A	3	8 9	Marking Protection against electric chock
B	3 to 48	10 14.102 and 14.103	Connection of conductors Torque and pull-out test
C	12 or 24	12 13	Resistance to ageing and to humidity Insulation resistance and electric strength
D	6	14.101	Clamping without undue damage to the conductors
E	6	14.101.1	Clamping with reduced number of conductors
F	3	14.2	Mechanical strength (tumbling barrel)
G	6	15.101	Temperature rise
H	6 or 12	15.102.1	Temperature cycling test
I	3	15.102.2	Short-time withstand current test
K	3	16 18	Resistance to heat Resistance to abnormal heat and fire

If insufficient samples are available according to Table 101, sets B and C may be combined but, in this case, the tests of Clause 13 have to be made first.

6 Main characteristics

This clause of Part 1 is applicable except as follows:

Addition:

6.101 The preferred additional values of rated insulation voltage are 300 V and 600 V.

7 Classification

This clause of Part 1 is not applicable, except for subclause 7.5.

Addition:

7.101 Classification according to type and combinations of conductors

- TOCD for rigid (solid or stranded) conductors;
- TOCD for flexible conductors;
- TOCD for the combination of rigid (solid or stranded) and flexible conductors.

8 Marking

This clause of Part 1 is applicable, except as follows:

8.1 Replacement:

For a TOCD, the following markings apply.

- The following shall be marked on the TOCD:
 - a) manufacturer's or responsible vendor's name, trade mark or identification mark;
 - b) type reference, catalogue number or part number;
 - c) range of TOCD's connecting capacity;
 - d) rated insulation voltage.

☐ text deleted ☐

Example:

A TOCD designed for the connection of a minimum of two conductors of 2,5 mm² up to and including two conductors of 6 mm² shall be marked: 2,5-6 mm².

For very small devices, with a surface insufficient for complete marking, only a) and b) need to be marked on the TOCD.

- In addition, the following shall be marked on the smallest package unit or on an instruction or information sheet packed within the smallest package unit:
 - a) manufacturer's or responsible vendor's name, trade mark or identification mark;
 - b) type reference, catalogue number or part number;
 - c) allowable conductor combinations and the range of TOCD's connecting capacity as stated in mm² ☐ text deleted ☐;