

Lightning Protection Components (LPC) —

Part 4: Requirements for conductor fasteners

ICS 91.120.40

National foreword

This British Standard is the UK implementation of EN 50164-4:2008.

The UK participation in its preparation was entrusted to Technical Committee GEL/81, Protection against lightning.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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**Lightning Protection Components (LPC) -
Part 4: Requirements for conductor fasteners**

Composants de protection
contre la foudre (CPF) -
Partie 4: Prescriptions
pour les fixations de conducteur

Blitzschutzbauteile -
Teil 4: Anforderungen an Halter

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CENELEC

European Committee for Electrotechnical Standardization
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Europäisches Komitee für Elektrotechnische Normung

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Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 81X, Lightning protection.

The text of the draft was submitted to the Unique Acceptance procedure and was approved by CENELEC as EN 50164-4 on 2008-04-01.

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) 2009-04-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2011-04-01

EN 50164 is a family standard and consists of the following parts under the generic title “*Lightning Protection Components (LPC)*”:

Part 1	Requirements for connection components
Part 2	Requirements for conductors and earth electrodes
Part 3	Requirements for isolating spark gaps
Part 4	Requirements for conductor fasteners
Part 5 ¹⁾	Requirements for earth electrode inspection housings and earth electrode seals
Part 6 ¹⁾	Requirements for lightning strike counters
Part 7	Requirements for earthing enhancing compounds

¹⁾ In preparation.

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1 Scope

This European standard specifies requirements and tests for:

- metallic and non-metallic conductor fasteners that are used in conjunction with the air termination system and down conductors;
- fixing of fasteners to the fabric / membrane / gravel roofing of structures is not covered by this standard due to the vast number and types used in modern day construction.

LPC may also be suitable for use in hazardous atmospheres. Regard should then be taken of the extra requirements necessary for the components to be installed in such conditions.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 60068-2-52	1996	Environmental testing – Part 2: Tests - Test Kb: Salt mist, cyclic (sodium chloride solution) (IEC 60068-2-52:1996)
EN 62305-3	2006	Protection against lightning – Part 3: Physical damage to structures and life hazard (IEC 62305-3:2006, mod.)
EN ISO 4892-2	2006	Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps (ISO 4892-2:2006)
EN ISO 6988	1994	Metallic and other non-organic coatings – Sulfur dioxide test with general condensation of moisture (ISO 6988:1985)
ISO 4892-4	2004	Plastics – Methods of Exposure to laboratory light sources – Part 4: Open-flame carbon-arc lamps
ISO 6957	1988	Copper alloys – Ammonia test for stress corrosion resistance

3 Definitions

For the purpose of this European Standard, the following definitions apply.

3.1

conductor fastener

a metallic, non-metallic or composite component designed to retain and support the air termination and down conductor, installed at intervals along the length of the conductors

NOTE The conductor fastener may be provided with a means of attachment to a mounting surface.

4 Classification

Conductor fasteners are classified:

4.1 According to the material composition

4.1.1 Metallic (e.g. hot dip galvanized steel, copper, aluminium, stainless steel)

4.1.2 Non-metallic (e.g. PVC, plastics)

4.1.3 Composite (combination of metal and plastic)

4.2 According to fixing arrangement of the conductor within the fastener

4.2.1 With screws

4.2.2 Without screws (e.g. clips, springs)

4.3 According to conductor clamping arrangement

4.3.1 Fasteners that are designed to clamp the conductor

4.3.2 Fasteners that are designed to allow axial movement of the conductor

5 Requirements

5.1 General

The conductor fastener shall carry out its function of clamping the conductor in an acceptable and safe manner when subjected to mechanical influences, lightning discharge stress and environmental influences.

Conductor fasteners shall be so designed and constructed that safe handling is ensured and that retention and support for the conductor is provided and that in normal use their performance is reliable and without danger to persons and the surrounding.

The material of the conductor fastener shall be compatible with the conductor it is fastening, and the surface material it is fastening on and comply with the tests given in Clause 6.

5.2 Environmental requirements

5.2.1 Corrosion resistance

Metallic or composite fasteners shall withstand corrosion effects.

Compliance is checked following the manufacturer's declaration for the classification of the fastener in accordance with Clause 4 and by test according to 6.3.1 and 6.3.3.

5.2.2 UV resistance

Non-metallic and composite fasteners shall withstand UV effects.

Compliance is checked following the manufacturer's declaration for the classification of the fastener in accordance with Clause 4 and by test according to 6.3.2 and 6.3.3.

5.3 Mechanical strength

5.3.1 Perpendicular and axial loads

The design of the conductor fastener shall be such that it carries the perpendicular loads caused by the weight of the conductor, snow, ice and wind and axial loads caused by the thermal expansion / contraction of the conductor and its weight.

Compliance is checked following the manufacturer's declaration for the classification of the fastener in accordance with Clause 4 and by test according to 6.4.1 and 6.4.2.

5.3.2 Impact tests

Conductor fasteners shall be so designed and constructed to withstand impact stresses caused accidentally.

Compliance is checked by test according to 6.4.3.

5.4 Installation instructions

The manufacturer or supplier of the conductor fastener shall provide adequate information in his literature to ensure that the installer can select and install the component in a suitable and safe manner, in accordance with EN 62305-3.

Compliance is checked by inspection in accordance with 6.5.