



SLOVENSKI STANDARD
oSIST prEN IEC 63559:2026

01-november-2026

Koncentrična lega nadzemnih električnih pletenih vrvi

Concentric lay overhead electrical stranded conductor

Ta slovenski standard je istoveten z: prEN IEC 63559:2026

ICS:

29.060.10	Žice	Wires
29.240.20	Daljinovodi	Power transmission and distribution lines

oSIST prEN IEC 63559:2026

en,fr,de

Sample Document

get full document from standards.iteh.ai



7/774/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: IEC 63559 ED1	
DATE OF CIRCULATION: 2026-09-11	CLOSING DATE FOR VOTING: 2026-12-04
SUPERSEDES DOCUMENTS: 7/768/CD, 7/770A/CC	

IEC TC 7 : OVERHEAD ELECTRICAL CONDUCTORS	
SECRETARIAT: China	SECRETARY: Mr Qiu Zheng
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 11, TC 122	HORIZONTAL FUNCTION(S):
ASPECTS CONCERNED: Electricity transmission and distribution	
☒ SUBMITTED FOR CENELEC PARALLEL VOTING Attention IEC-CENELEC parallel voting The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Recipients of this document are invited to submit, with their comments, notification of any relevant "In Some Countries" clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE [AC/22/2007](#) OR [NEW GUIDANCE DOC](#)).

TITLE:

Concentric lay overhead electrical stranded conductors

PROPOSED STABILITY DATE: 2031

NOTE FROM TC/SC OFFICERS:

The comments on 7/774/CDV will be discussed at TC 7/MT 2 Meeting held in Hamburg, Germany on 2026-11-13. It is proposed that TC 7 Members (National Committees) submit their comments by end of October so that the Convenor/Project Leader could review these comments in advance and make preparation for the meeting as well.

Copyright © 2026 International Electrotechnical Commission, IEC. All rights reserved. It is permitted to download this electronic file, to make a copy and to print out the content for the sole purpose of preparing National Committee positions. You may not copy or "mirror" the file or printed version of the document, or any part of it, for any other purpose without permission in writing from IEC.

IEC CDV 63559 © IEC 2026

[Link to Committee Draft for Vote \(CDV\) online document:](#)

[Click here](#)

How to access

This link leads you to the Online Standards Development (OSD) platform for National Mirror Committee's (NMC) comments. The project draft may be found further down this document.

Resource materials

We recommend NCs to review the available materials to better understand the member commenting on the OSD platform. This includes the:

- [OSD NC roles overview](#)
- [How to add and submit comments to the IEC](#)

Contact

Should you require any assistance, please contact the [IEC IT Helpdesk](#).

Sample Document
get full document from standards.iteh.ai

CONTENTS

CONTENTS	1
FOREWORD	3
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Designation system	7
4.1 Purpose	7
4.2 Conductor composition	7
4.3 Conductor designation	10
5 Requirements for stranded conductors	10
5.1 Materials	10
5.2 Formed wires	10
5.3 Conductor geometry	11
5.4 Conductor sizes and properties	11
5.5 Surface	11
5.6 Stranding	11
5.7 Joints	12
5.8 Properties of wires after stranding	13
5.9 Increments due to stranding	14
5.10 Conductor classification	15
5.11 Grease	16
5.12 Length measurement	17
6 Calculation of conductor properties	17
6.1 Conductor diameter	17
6.2 Cross-sectional area	17
6.3 Mass per unit length	17
6.4 Rated tensile strength (RTS)	17
6.4.1 General	17
6.4.2 Homogeneous conductors	18
6.4.3 Reinforced combined aluminium-steel conductors	18
6.4.4 Supported combined aluminium-steel conductors	18
6.4.5 Combined aluminium conductors	18
6.5 Elastic modulus	18
6.6 Coefficient of linear expansion	18
6.7 DC resistance at 20°C	19
7 Tests	19
7.1 Classification of tests	19
7.1.1 Type tests (T)	19
7.1.2 Sample tests (S)	19
7.2 Test requirements	19
7.3 Sampling	20
7.4 Rounding rules	20
7.5 Test method	20
7.5.1 Tests on wires	20
7.5.2 Tests on conductor	20
8 Packaging and marking	24

8.1	Packaging	24
8.2	Marking and tare	24
8.3	Random lengths	24
8.4	Drum barrel diameter	24
Annex A (normative)	Contents of the technical datasheet	25
Annex B (normative)	Information to be supplied by purchaser	26
Annex C (normative)	Nominal mass of grease for stranded conductors	27
Annex D (normative)	Calculation method for increments of mass or electrical resistance due to stranding	30
Annex E (informative)	Lay ratios used for calculation of increments due to stranding	31
Annex F (informative)	Examples of conductor sizes and properties	34
F.1	General	35
F.2	Conductor tables of homogeneous conductors	35
F.3	Conductor tables of steel reinforced conductors (Type 0 and 1)	35
F.4	Conductor tables of steel supported conductors (Type 2)	36
F.5	Conductor tables of aluminium reinforced conductors (Type 0)	36
Annex G (informative)	Maximum operating temperatures and loss of strength	37
Bibliography		38
Figure 1 – Examples of conductors' sections		9
Figure 2 – Inertness test		22
Figure C.1 – Sections of a fully greased layer and of an internally greased layer		27
Figure C.2 – Cases of greasing application		28
Table 1 – Lay ratio ranges for steel wire layers for non-homogeneous steel conductors		12
Table 2 – Lay ratio ranges for aluminium wire layers		12
Table 3 – Number of joints permitted in aluminium layers		12
Table 4 – Permitted reductions in wire properties after stranding		13
Table 5 – Standard increments due to stranding		14
Table 6 – Conductor classification		16
Table 7 – RTS reduction factors for homogeneous conductors		18
Table 8 – List of tests to be performed		19
Table C.1 – Coefficients k for mass of grease		28
Table E.1 – Lay ratios used for calculation of increments due to stranding		31
Table F.1 – Examples of aluminium homogeneous conductors (Type 0)		35
Table F.2 – Examples of steel homogeneous conductors (Type 0)		35
Table F.3 – Examples of steel reinforced conductors		36
Table F.4 – Examples of steel supported conductors		36
Table F.5 – Examples of aluminium reinforced conductors		36

INTERNATIONAL ELECTROTECHNICAL COMMISSION

Concentric lay overhead electrical stranded conductors

FOREWORD

- a) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- b) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- c) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- d) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- e) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- f) All users should ensure that they have the latest edition of this publication.
- g) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- h) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- i) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of patents, which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 63559 has been prepared by Maintenance Team 2 of IEC technical committee 7: Overhead electrical conductors. It is an International Standard.

This XXX edition cancels and replaces the XXX edition published in [publication_date], Amendment 1:[publication_date] and Amendment 2:[publication_date]. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) ...;

The text of this International Standard is based on the following documents:

Draft	Report on voting
XX/XX/FDIS	XX/XX/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

Sample Document

get full document from standards.iteh.ai

1 Scope

This International Standard specifies the designation system, requirements, test methods, inspection rules, marks and packaging of concentric lay overhead stranded conductors made of combinations of any of the following metal wires:

- a) round or formed conductive wires as per IEC 62641,
- b) round wires as per IEC 63248.

This International Standard does not refer to gap-conductors as per IEC 62420.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 60468, *Method of measurement of resistivity of metallic materials*

IEC 61394, *Overhead lines - Requirements for greases for aluminium, aluminium alloy and steel bare conductors*

IEC TR 61597, *Overhead electrical conductors - Calculation methods for stranded bare conductors*

IEC 62641, *Conductors for overhead lines - Aluminium and aluminium alloy wires for concentric lay stranded conductors*

IEC 63248, *Conductors for overhead lines - Coated or clad metallic wire for concentric lay stranded conductors*

ISO 2176:1995, *Petroleum products — Lubricating grease — Determination of dropping point*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply. The terms and the definitions listed here are those which differ from or do not appear in IEC 60050-466.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

aluminium

all types of aluminium and aluminium alloys listed in IEC 62641.

3.2

conductor

concentric lay stranded conductor of an overhead line, intended as a wire or combination of wires not insulated one from another and being laid helically in opposite directions, suitable for carrying an electric current.

3.3**core**

the central wire or the inner layer(s) made up of the higher strength material, used as reinforcing or supporting part of a combined conductor.

3.4**direction of lay**

direction of twist of a layer of wires as it moves away from the viewer. A right-hand lay is a clockwise direction and a left-hand lay is an anti-clockwise direction.

Note 1 to entry: With right-hand lay, the wires conform to the direction of the central part of the letter Z when the conductor is held vertically. With left-hand lay, the wires conform to the direction of the central part of the letter S when the conductor is held vertically.

3.5**envelope**

conductive outer layer(s) made up of the higher conductive material in a combined conductor.

3.6**equivalent diameter**

diameter of a circle which would have the same cross-sectional area, mass per unit length and electrical resistance of a given formed wire:

$$D_{\text{eq}} = \sqrt{\frac{4}{\pi} S} \quad (1)$$

where S is the cross-sectional area of the formed wire.

3.7**formed wire**

A filament of metal having a constant non-circular cross-section

3.8**inertness**

The property of the wires to remain in their position after cut.

3.9**lay length**

Axial length of one complete turn of the helix formed by an individual wire in a stranded conductor.

3.10**lay ratio**

ratio of the lay length to the external diameter of the corresponding layer of wires in the stranded conductor.

3.11**lot**

group of conductors manufactured by the same manufacturer under similar conditions of production. A lot may consist of a part of or the whole of the purchased quantity.

3.12**nominal**

name or identifying value of a measurable property by which a conductor or component of a conductor is identified and to which tolerances are applied. When a property is tested, it shall be intended as the target value.

3.13**maximum conductor continuous operating temperature (T_c)**

maximum continuous temperature at which the conductor can be operated without significant reduction of its rated tensile strength during its expected lifetime.

Note 1 to entry: The expected lifetime is defined between 30 and 80 years (typically 40 years) depending on technology and environmental conditions.

3.14**maximum conductor peak load (emergency operating) temperature (T_p)**

maximum temperature at which the conductor can be exposed without significant reduction of its rated tensile strength during a cumulative period of time (peak loads).

Note 1 to entry: Cumulative duration of peak loads shall not exceed a limit time (400 to 1000 h) for Type 0 and Type 1 conductors.

3.15**rated tensile strength**

RTS

breaking load of an unaged conductor, calculated from the specified tensile properties of the constituent wires.

3.16**round wire (or wire)**

Filament of metal having a constant cross-section and a circular shape

3.17**sample**

one or more specimens taken from a production unit and considered to have properties representative of a batch.

3.18**specimen**

a length or a component of the conductor taken for test purposes.

3.19**steel**

all types of steel and FeNi36 listed in IEC 63248.

3.20**type of conductor**

classification of a combination of materials for the envelope and/or the core, based on operating temperatures and required tests.

4 Designation system**4.1 Purpose**

A designation system is used to identify stranded conductors made of aluminium wires (round or formed) and/or steel wires.

4.2 Conductor composition

Homogeneous conductors are made up of a single material from the ones listed in 5.1.

Combined aluminium conductors are composed of an envelope and a core made up of different aluminium types.

Combined aluminium-steel conductors are composed of an envelope made up of aluminium and a core made up of steel.

Examples are given in [Figure 1](#).

Sample Document

get full document from standards.iteh.ai