



**SLOVENSKI STANDARD**  
**SIST EN 61854:1999**

**01-november-1999**

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**Nadzemni vodi - Zahteve in preskusi za distančnike (IEC 61854:1998)**

Overhead lines - Requirements and tests for spacers

Freileitungen - Anforderungen und Prüfungen für Feldabstandhalter

Lignes aériennes - Exigences et essais applicables aux entretoises

**Ta slovenski standard je istoveten z: EN 61854:1998**

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**ICS:**

29.240.20	Daljnovodi	Power transmission and distribution lines
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**SIST EN 61854:1999**

**en,fr**

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EUROPEAN STANDARD

EN 61854

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 1998

ICS 29.240.20

Descriptors: Overhead electrical line, bundled conductor, spacer, definition, requirement, design, test, visual examination, verification of dimension, non destructive test, mechanical test, electrical test, classification, quality of assurance, protection against corrosion, elastomer, ozone resistance test

English version

**Overhead lines - Requirements and tests for spacers**  
(IEC 61854:1998)

Lignes aériennes - Exigences et essais  
applicables aux entretoises  
(CEI 61854:1998)

Freileitungen - Anforderungen und  
Prüfungen für Abstandhalter  
(IEC 61854:1998)

This European Standard was approved by CENELEC on 1998-10-01. 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.

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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 text of document 11/141/FDIS, future edition 1 of IEC 61854, prepared by IEC TC 11, Overhead lines, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61854 on 1998-10-01.

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) 1999-07-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2001-07-01

Annexes designated "normative" are part of the body of the standard.  
Annexes designated "informative" are given for information only.  
In this standard, annexes A and ZA are normative and annexes B, C and D are informative.  
Annex ZA has been added by CENELEC.

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### Endorsement notice

The text of the International Standard IEC 61854:1998 was approved by CENELEC as a European Standard without any modification.

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**Annex ZA (normative)**

**Normative references to international publications  
with their corresponding European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE: When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050(466)	1990	International electrotechnical vocabulary (IEV) - Chapter 466: Overhead lines	-	-
IEC 61284	1997	Overhead lines - Requirements and tests for fittings	EN 61284	1997
IEC 60888	1987	Zinc-coated steel wires for stranded conductors	-	-
ISO 34-1	1994	Rubber, vulcanized or thermoplastic Determination of tear strength Part 1: Trouser, angle and crescent test pieces	-	-
ISO 34-2	1996	Part 2: Small (Delft) test pieces	-	-
ISO 37	1994	Rubber, vulcanized or thermoplastic Determination of tensile stress-strain properties	-	-
ISO 188	1982	Rubber, vulcanized - Accelerated ageing or heat-resistance tests	-	-
ISO 812	1991	Rubber, vulcanized - Determination of low temperature brittleness	-	-
ISO 815	1991	Rubber, vulcanized or thermoplastic Determination of compression set at ambient, elevated or low temperatures	-	-
ISO 868	1985	Plastics and ebonite - Determination of indentation hardness by means of a durometer (Shore hardness)	-	-
ISO 1183	1987	Plastics - Methods for determining the density and relative density of non-cellular plastics	-	-

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<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 1431-1	1989	Rubber, vulcanized or thermoplastic Resistance to ozone cracking Part 1: Static strain test	-	-
ISO 1461	1 <sup>1)</sup>	Hot dip galvanized coatings on fabricated ferrous products - Specifications	-	-
ISO 1817	1985	Rubber, vulcanized - Determination of the effect of liquids	-	-
ISO 2781	1988	Rubber, vulcanized - Determination of density	-	-
ISO 2859-1	1989	Sampling procedures for inspection by attributes Part 1: Sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection	-	-
ISO 2859-2	1985	Part 2: Sampling plans indexed by limiting quality (LQ) for isolated lot inspection	-	-
ISO 2921	1982	Rubber, vulcanized - Determination of low temperature characteristics Temperature-retraction procedure (TR test)	-	-
ISO 3417	1991	Rubber - Measurement of vulcanization characteristics with the oscillating disc curemeter	-	-
ISO 3951	1989	Sampling procedures and charts for inspection by variables for percent non-conforming	-	-
ISO 4649	1985	Rubber - Determination of abrasion resistance using a rotating cylindrical drum device	-	-
ISO 4662	1986	Rubber - Determination of rebound resilience of vulcanizates	-	-

<https://standards.iteh.ai/catalog/standards/sist/edd9c7f1-c5b2-43ab-b5c-0842566029c/sist-en-61854-1998>

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1) To be published.

NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD

CEI  
IEC

61854

Première édition  
First edition  
1998-09

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Lignes aériennes –  
Exigences et essais applicables aux entretoises

Overhead lines –  
Requirements and tests for spacers  
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International Electrotechnical Commission  
Международная Электротехническая Комиссия

CODE PRIX  
PRICE CODE

X

Pour prix, voir catalogue en vigueur  
For price, see current catalogue

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**OVERHEAD LINES –  
REQUIREMENTS AND TESTS FOR SPACERS**
**FOREWORD**

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the 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 National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61854 has been prepared by IEC technical committee 11: Overhead lines.

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

FDIS	Report on voting
11/141/FDIS	11/143/RVD

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

Annex A forms an integral part of this standard.

Annexes B, C and D are for information only.

## OVERHEAD LINES – REQUIREMENTS AND TESTS FOR SPACERS

### 1 Scope

This International Standard applies to spacers for conductor bundles of overhead lines. It covers rigid spacers, flexible spacers and spacer dampers.

It does not apply to interphase spacers, hoop spacers and bonding spacers.

NOTE – This standard is written to cover the line design practices and spacers most commonly used at the time of writing. There may be other spacers available for which the specific tests reported in this standard may not be applicable.

In many cases, test procedures and test values are left to agreement between purchaser and supplier and are stated in the procurement contract. The purchaser is best able to evaluate the intended service conditions, which should be the basis for establishing the test severity.

In annex A, the minimum technical details to be agreed between purchaser and supplier are listed.

### 2 Normative references

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The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication of this standard, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60050(466):1990, *International Electrotechnical vocabulary (IEV) – Chapter 466: Overhead lines*

IEC 61284:1997, *Overhead lines – Requirements and tests for fittings*

IEC 60888:1987, *Zinc-coated steel wires for stranded conductors*

ISO 34-1:1994, *Rubber, vulcanized or thermoplastic – Determination of tear strength – Part 1: Trouser, angle and crescent test pieces*

ISO 34-2:1996, *Rubber, vulcanized or thermoplastic – Determination of tear strength – Part 2: Small (Delft) test pieces*

ISO 37:1994, *Rubber, vulcanized or thermoplastic – Determination of tensile stress-strain properties*

ISO 188:1982, *Rubber, vulcanized – Accelerated ageing or heat-resistance tests*

ISO 812:1991, *Rubber, vulcanized – Determination of low temperature brittleness*

ISO 815:1991, *Rubber, vulcanized or thermoplastic – Determination of compression set at ambient, elevated or low temperatures*

ISO 868:1985, *Plastics and ebonite – Determination of indentation hardness by means of a durometer (Shore hardness)*

ISO 1183:1987, *Plastics – Methods for determining the density and relative density of non-cellular plastics*

ISO 1431-1:1989, *Rubber, vulcanized or thermoplastic – Resistance to ozone cracking – Part 1: static strain test*

ISO 1461, — *Hot dip galvanized coatings on fabricated ferrous products – Specifications* <sup>1)</sup>

ISO 1817:1985, *Rubber, vulcanized – Determination of the effect of liquids*

ISO 2781:1988, *Rubber, vulcanized – Determination of density*

ISO 2859-1:1989, *Sampling procedures for inspection by attributes – Part 1: Sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection*

ISO 2859-2:1985, *Sampling procedures for inspection by attributes – Part 2: Sampling plans indexed by limiting quality level (LQ) for isolated lot inspection*

ISO 2921:1982, *Rubber, vulcanized – Determination of low temperature characteristics – Temperature-retraction procedure (TR test)*

ISO 3417:1991, *Rubber – Measurement of vulcanization characteristics with the oscillating disc curemeter*

ISO 3951:1989, *Sampling procedures and charts for inspection by variables for percent nonconforming*

ISO 4649:1985, *Rubber – Determination of abrasion resistance using a rotating cylindrical drum device*

ISO 4662:1986, *Rubber – Determination of rebound resilience of vulcanizates*

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<sup>1)</sup> To be published.

### 3 Definitions

For the purpose of this International Standard the definitions of the *International Electrotechnical Vocabulary (IEV)* apply, in particular IEC 60050(466). Those which differ or do not appear in the IEV are given below.

#### 3.1

##### **rigid spacer**

spacer allowing no relative movement between the subconductors at the spacer location

#### 3.2

##### **flexible spacer**

spacer allowing relative movements between the subconductors at the spacer location

#### 3.3

##### **spacer system**

complex of spacers and the relevant in-span distribution

### 4 General requirements

#### 4.1 Design

The spacer shall be designed as to

- maintain subconductor spacing (at spacer locations), within any prescribed limits, under all conditions of service excluding short-circuit currents;
- prevent, in subspans between spacers, physical contact between subconductors, except during the passage of short circuit currents when the possibility of contact is accepted provided that the specified spacing is restored immediately following fault clearance;
- withstand mechanical loads imposed on the spacer during installation, maintenance and service (including short circuit conditions) without any component failure or unacceptable permanent deformation;
- avoid damage to the subconductor under specified service conditions;
- be free from unacceptable levels of corona and radio interference under specified service conditions;
- be suitable for safe and easy installation. For the bolted and latching clamp the design shall retain all parts when opened for attachment to the conductor;
- ensure that individual components will not become loose in service;
- be capable of being removed and re-installed on the subconductors without damage to the spacer or subconductors;
- maintain its function over the entire service temperature range;
- avoid audible noise.

NOTE – Other desirable characteristics, which are not essential to the basic functions of the spacer but which may be advantageous to the purchaser, include:

- verification of proper installation from the ground,
- ease of installation and removal from energized lines.