

Elektriõhuliinid vahelduvpingega üle 1 kV kuni 45 kV. Osa 1: Üldnõuded - Ühised eeskirjad

Overhead electrical lines exceeding AC 1 kV up to and including AC 45 kV Part 1: General requirements – Common specifications

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 50423-1:2005 sisaldab Euroopa standardi EN 50423-1:2005 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 23.02.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 50423-1:2005 consists of the English text of the European standard EN 50423-1:2005.</p> <p>This document is endorsed on 23.02.2005 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala: Standard hõlmab elektriõhuline vahelduvpingega 1 kV kuni 45 kV ja nimisagedusega alla 100 Hz.</p> <p>Standard määrab kindlaks uute õhuliinide projekteerimise ja ehitamise üldnõuded, mida tuleb järgida, et kindlustada liini vastavus tema otstarbele, pidades silmas inimeste ohutuse, hoolde, käidu ja keskkonnavalasid nõudeid.</p> <p>Märkus 1. Standardi kohaldamise ulatus iga riigi olemasolevatele õhuliinidele sõltub vastavas riigis kehtestatud siseriiklikest erinõuetes (SEN).</p> <p>Standard ei hõlma elektriõhuline dokumendiga HD 637 määratletud suletud elektrikäiduladel ja elektriraudtee toitesüsteeme.</p>	<p>Scope: This standard applies to bare and covered conductor overhead lines and overhead insulated cable systems with nominal voltage exceeding AC 1 kV up to and including AC 45 kV and with rated frequencies below 100 Hz.</p>
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ICS 29.240.20

Võtmesõnad: overhead

English version

**Overhead electrical lines exceeding AC 1 kV
up to and including AC 45 kV
Part 1: General requirements –
Common specifications**

Lignes électriques aériennes
dépassant 1 kV AC jusqu'à 45 kV AC
Partie 1: Exigences générales –
Spécifications communes

Freileitungen über AC 1 kV
bis einschließlich AC 45 kV
Teil 1: Allgemeine Anforderungen –
Gemeinsame Festlegungen

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CENELEC

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

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Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 11, Overhead electrical lines exceeding 1 kV a.c. (1,5 kV d.c.).

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50423-1 on 2004-10-01.

This European Standard is to be read with EN 50341-1:2001.

The following dates were fixed:

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| – latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2005-10-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2007-10-01 |
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Introduction

This standard is based on EN 50341-1 “Overhead electrical lines exceeding AC 45 kV – Part 1: General requirements – Common Specifications”.

As an aid to the user the clause numbers of this standard refer to, amend, substitute for or add to the text of the same clause number in EN 50341-1. Consequently, contrary to usual practice, the clauses of this standard are not numbered sequentially.

In order to avoid confusion regarding references to NNAs, the NNAs of EN 50341 (ie. EN 50341-3) are referred to as “associated NNAs” to EN 50341. All other reference to NNAs in this standard refer to those included in EN 50423-3, which may be either entirely new NNAs or amended and updated NNAs of EN 50341-3.

1 Scope

This standard applies to bare and covered conductor overhead lines and overhead insulated cable systems with nominal voltage exceeding AC 1 kV up to and including AC 45 kV and with rated frequencies below 100 Hz.

In general the requirements in EN 50341-1 apply. This standard specifies additional requirements and simplifications that apply only for this voltage range.

In connection with EN 50341-1, this standard specifies the general requirements that shall be met for the design and construction of new overhead lines to ensure that the line is suitable for its purpose with regard to safety of persons, maintenance, operation and environmental considerations.

This standard does not apply to:

- overhead electric lines inside closed electrical areas as defined in HD 637 S1;
- catenary systems of electrified railways unless explicitly required by another standard.

2 Definitions, list of symbols and references

As EN 50341-1, except the following are added:

2.1 Definitions

2.1.14 conductor (of an overhead line)

2.1.14.1

covered conductor

conductor surrounded by a covering made of insulating material to protect against accidental contact between other covered conductors and with earthed parts. Due to being unscreened, covered conductors are not sufficiently insulated to be touch-proof

2.1.14.2

overhead insulated cable system

system in which each conductor is surrounded by a covering made of insulating material, which fully protects against all leakage currents phase to phase or to earthed parts. In the majority of cases, each phase conductor will have a core screen. Examples of such overhead insulated cable system include: aerial bundled conductors (ABC); self-supporting and lashed underground cable; and “Universal” cable systems

2.1.107

glu-lam wooden poles

an abbreviation for glued laminated wooden poles. In respect of this standard, the term refers to wooden poles manufactured from such glued laminations in contrast to naturally grown timber poles

2.2 List of symbols

The following symbols are additional to those included in EN 50341-1.

Symbol	Signification	References
a	spacing of the two poles of a structure at half structure height	4.2.2.4.4
c	minimum clearance between the conductors at mid-span	5.4.3.1
d	diameter of the insulated cable/ line	Table 5.4.3
d_m	the average of the mean diameters from two separate poles	4.2.2.4.4
f	sag of the conductor at a temperature of +40 °C	5.4.3.1
k_a	coefficient according to Table 5.4.3.1	5.4.3.1
l_k	length in m of any insulator set swinging orthogonal to the line direction	5.4.3.1

2.3 References

The following references are additional to the reference list in EN 50341-1.

Reference	Title
EN 12843	Precast concrete masts and posts
EN 14229 ¹⁾	Wood poles for overhead lines. Requirements
EN 50341-1	Overhead electrical lines exceeding AC 45 kV Part 1: General requirements – Common specifications
EN 50341-3	Overhead electrical lines exceeding AC 45 kV Part 3: Set of National Normative Aspects
EN 50397-1 ¹⁾	Covered conductors for overhead lines and the related accessories for rated voltages above 1 kV a.c. and not exceeding 36 kV a.c. – Part 1: Covered conductors
IEC 61952	Insulators for overhead lines with a nominal voltage above 1 000 V. Composite line post insulators for a.c. systems.

3 Basis of design

3.1 General

The provisions specified in EN 50341-1 apply. Exceptions to these, if applicable, shall be specified in the NNAs. This clause of the standard provides the basis and the general principles for the design of lines with nominal rated voltages exceeding AC 1 kV, up to and including AC 45 kV (in respect of bare and covered conductor overhead lines and overhead insulated cable systems).

The fifth paragraph of Subclause 3.1 in EN 50341-1 shall be replaced by the following:

In principle, there are two approaches used to determine numerical values for actions and for partial factors. The first is on the basis of the statistical evaluation of meteorological and experimental data and field observations (later called the General Approach) which is based on a probabilistic reliability theory as described in IEC 60826. A second approach (later called the Empirical Approach) is on the basis of using actions obtained by a long experience of construction of overhead lines. Such specific national designs may be specified in the NNAs.

¹⁾ At draft stage.