

**JUHTMED JA KAABLID. TUGEVVOOLUJUHTMED JA -  
KAABLID NIMIPINGEGA KUNI 450/750 V (U<sub>0</sub>/U).  
OSA 1: ÜLDNÕUDED**

**Electric cables - Low voltage energy cables of rated  
voltages up to and including 450/750 V (U<sub>0</sub>/U) -  
Part 1: General requirements**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 50525-1:2011+A1:2022 sisaldab Euroopa standardi EN 50525-1:2011 ja selle muudatuse A1:2022 ingliskeelset teksti.	This Estonian standard EVS-EN 50525-1:2011+A1:2022 consists of the English text of the European standard EN 50525-1:2011 and its amendment A1:2022.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.  Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 06.05.2011, muudatus A1 04.11.2022.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.  Date of Availability of the European standard is 06.05.2011, for A1 04.11.2022.
Muudatusega A1 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega $\boxed{A_1}$ $\langle A_1 \rangle$ .	The start and finish of text introduced or altered by amendment A1 is indicated in the text by tags $\boxed{A_1}$ $\langle A_1 \rangle$ .
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ICS 29.060.20

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English Version

## Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U0/U) - Part 1: General requirements

Câbles électriques - Câbles d'énergie basse tension de tension assignée au plus égale à 450/750 V (U0/U) - Partie 1: Exigences générales

Kabel und Leitungen - Starkstromleitungen mit Nennspannungen bis 450/750 V (U0/U) - Teil 1: Allgemeine Anforderungen

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Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

## Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 20, Electric cables.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50525-1 on 2011-01-17.

This document, which is one of a multipart series, supersedes HD 21.1 S4:2002 and HD 22.1 S4:2002.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

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) 2012-01-17
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2014-01-17

## **A1** Amendment A1 European foreword

This document (EN 50525-1:2011/A1:2022) has been prepared by CLC/TC 20 “*Electric cables*”.

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2023-10-10
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2025-10-10

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## Introduction

Ⓐ This document provides the general part of series EN 50525. The individual product standard parts in Annex-E are for equipment manufacturers, installers and end-users.

The use of these cable standards in a different way than that recommended by EN 50565-1 and EN 50565-2 could result in a lowering of safety and/or in a reduction of the expected life of the cable.

For the relationship with EU Directive (2014/35/EU) see informative Annex ZZ of the individual parts. This part contains only the general requirements. Each separate product standard part refers to this part.

In some countries local regulation(s) may define reaction of fire performances if the product is for permanent installation in works. Performance requirements are those given in EN 50575 for relevant properties. Ⓐ

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## 1 Scope

This European Standard gives the general requirements for rigid and flexible energy cables of rated voltages  $U_0/U$  up to and including 450/750 V  $\text{[A1]}$  AC  $\text{[A1]}$ , used in power installations and with domestic and industrial appliances and equipment.

NOTE 1 For some types of flexible cables, the term "cord" is used.

NOTE 2 Rated voltages are given by reference to alternating current  $\text{[A1]}$  *deleted text*  $\text{[A1]}$  systems. Use of the cables in direct current  $\text{[A1]}$  *deleted text*  $\text{[A1]}$  systems is permitted.

NOTE 3 National regulations may prescribe additional performance requirements for cables that are not given in the particular requirements. For example for buildings with high levels of public access, additional fire performance requirements may be applicable,

The test methods for checking conformity with the requirements are given in other standards (see Introduction).

The particular types of cables are specified in EN 50525-2 (series) and EN 50525-3 (series). The individual parts within those two series are collectively referred to hereafter as "the particular specifications".

Only the sizes (conductor class, cross-sectional area), number of cores, other constructional features and rated voltages given in the particular specification apply to the individual cable type.

The code designations of these types of cables are in accordance with HD 361.

## 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.

NOTE One or more references to the standards below are in respect of a specific sub-division of that standard, for instance a clause, a table, a class or a type. Cross-references to these standards are undated and, at all times, the latest version applies.

$\text{[A1]}$  EN 50565-1, *Electric cables - Guide to use for cables with a rated voltage not exceeding 450/750 V (U<sub>0</sub>/U) - Part 1: General guidance*

EN 50565-2, *Electric cables - Guide to use for cables with a rated voltage not exceeding 450/750 V (U<sub>0</sub>/U) - Part 2: Specific guidance related to EN 50525 cable types*

EN 50575, *Power, control and communication cables - Cables for general applications in construction works subject to reaction to fire requirements*

EN 60754-1, *Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content*

EN 60754-2, *Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity*  $\text{[A1]}$

EN 50334, *Marking by inscription for the identification of cores of electric cables*

EN 50363, *Series, Insulating, sheathing and covering materials for low-voltage energy cables*

EN 50395, *Electrical test methods for low voltage energy cables*

EN 50396 *Non electrical test methods for low voltage energy cables*

EN 60228 Conductors of insulated cables (IEC 60228)

EN 60684-2 Flexible insulating sleeving – Part 2: Methods of test (IEC 60684-2)

HD 308 Identification of cores in cables and flexible cords

HD 361 System for cable designation

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

#### 3.1

##### **type tests (Symbol T)**

tests required to be made before supplying a type of cable covered by this standard on a general commercial basis, in order to demonstrate satisfactory performance characteristics to meet the intended application

NOTE These tests are of such a nature that, after they have been made, they need not be repeated unless changes are made in the cable materials, design or type of manufacturing process which might change the performance characteristics.

#### 3.2

##### **sample tests (Symbol S)**

tests made on samples of completed cable, or components taken from a completed cable adequate to verify that the finished product meets the design specifications

#### 3.3

##### **routine tests (Symbol R)**

tests made on all production cable lengths to demonstrate their integrity

#### 3.4

##### **dummy core**

extruded element having the same overall diameter as the insulated core

### 4 Rated voltage

The rated voltage of a cable is the reference voltage for which the cable is designed.

The rated voltage in an alternating current system, is expressed by the combination of two values  $U_0/U$ , expressed in volts, where:

- a)  $U_0$  is the r.m.s. value between any insulated conductor and “earth” (metal covering of the cable or the surrounding medium);
- b)  $U$  is the r.m.s. value between any two phase conductors of a multicore cable or of a system of single core cables.

In an alternating current system, the rated voltage of a cable should be at least equal to the nominal voltage of the system for which it is intended. This condition applies to the values of both  $U_0$  and  $U$ .

NOTE For information about the maximum permanent permitted operating voltage of the system  $U_{A1}$  (AC or DC) refer to EN 50565-1  $\text{A1}$ .