

**Ohutus elekterkuumutuspaigaldistes. Osa 10: Erinõuded takistuslikele trassikuumutussüsteemidele tööstuslikes ja kommertsrakendustes**

**Safety in electroheat installations - Part 10: Particular requirements for electrical resistance trace heating systems for industrial and commercial applications (IEC 60519-10:2013)**

## EESTI STANDARDI EESSÕNA

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**Safety in electroheating installations -  
Part 10: Particular requirements for electrical resistance trace heating  
systems for industrial and commercial applications  
(IEC 60519-10:2013)**

Sécurité dans les installations  
électrothermiques -  
Partie 10: Règles particulières pour les  
systèmes de chauffage par traçage à  
résistance électrique pour applications  
industrielles et commerciales  
(CEI 60519-10:2013)

Sicherheit in Elektrowärmeanlagen -  
Teil 10: Besondere Anforderungen an  
elektrische Trace-Widerstandsheizungen  
für industrielle und gewerbliche Zwecke  
(IEC 60519-10:2013)

This European Standard was approved by CENELEC on 2013-03-29. 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.

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

**Management Centre: Avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document 27/853/CDV, future edition 2 of IEC 60519-10, prepared by IEC TC 27 "Industrial electroheating and electromagnetic processing" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60519-10:2013.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2013-12-29
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-03-29

This document supersedes EN 60519-10:2005.

EN 60519-10:2013 includes the following significant technical changes with respect to EN 60519-10:2005:

- the structure has been amended and adjusted to EN 60519-1:2011;
- references to EN 62395-1 and EN 62395-2 have been completed.

The clauses of parts of the EN 60519 series (hereinafter called Particular requirements) supplement or modify the corresponding clauses of EN 60519-1:2011 (General requirements hereinafter called Part 1).

This part of EN 60519 is to be read in conjunction with Part 1. It supplements or modifies the corresponding clauses of Part 1. Where the text indicates an "addition" to or a "replacement" of the relevant provision of Part 1, these changes are made to the relevant text of Part 1. Where no change is necessary, the words "This clause of Part 1 is applicable" are used. When a particular subclause of Part 1 is not mentioned in this part, that subclause applies as far as is reasonable.

Additional specific provisions to those in Part 1, given as individual clauses or subclauses, are numbered starting from 101.

NOTE The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.

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

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

## Endorsement notice

The text of the International Standard IEC 60519-10:2013 was approved by CENELEC as a European Standard without any modification.

## Annex ZA (normative)

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

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

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

**Addition to Annex ZA of EN 60519-1:2011:**

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60519-1 + corr. November	2010 2012	Safety in electroheating installations - Part 1: General requirements	EN 60519-1	2011
IEC 62395-1	201X <sup>1)</sup>	Electrical resistance trace heating systems for industrial and commercial applications - Part 1: General and testing requirements	EN 62395-1	201X <sup>1)</sup>
IEC 62395-2	201X <sup>1)</sup>	Electrical resistance trace heating systems for industrial and commercial applications - Part 2: Application guide for system design, installation and maintenance	EN 62395-2	201X <sup>1)</sup>

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

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## INTRODUCTION

It is the objective of this standard that, when in accordance with the standard, electrical trace heating systems operate safely under their normal defined conditions of use, by

- a) employing heaters of the appropriate construction and meeting the test criteria detailed in IEC 62395-1;
- b) operating at safe temperatures when designed, installed, and maintained in accordance with IEC 62395-2;
- c) having at least the minimum levels of overcurrent and ground-fault protection, and an evenly distributed electrically conductive metallic braid, sheath or other equivalent electrically conductive material, as specified in IEC 62395-1 and IEC 62395-2.

## SAFETY IN ELECTROHEATING INSTALLATIONS –

### Part 10: Particular requirements for electrical resistance trace heating systems for industrial and commercial applications

#### 1 Scope and object

This clause of Part 1 is replaced by the following.

##### *Replacement:*

This part of IEC 60519 provides safety requirements for electrical resistance trace heating systems used in industrial and commercial applications for piping, vessels, roofs, concrete slab heating and other similar applications.

This standard pertains to trace heating systems that may comprise either factory fabricated or field (work-site) assembled units, and which may be series heater cables, parallel heater cables, heater pads or heater panels that have been assembled and/or terminated in accordance with manufacturer's instructions.

Typical applications include but are not limited to

- the freeze protection of pipes, tanks and vessels, including fire water systems;
- maintaining required temperatures of equipment, including pipes, tanks and vessels;
- earth thermal storage;
- hot water temperature maintenance;
- snow melting of surfaces;
- de-icing of roofs and gutters.

This standard does not include or provide for any requirements in potentially explosive atmospheres.

This part of IEC 60519 does not cover induction, impedance or skin effect heating.

NOTE Specific requirements and test criteria for electrical resistance trace heating systems and design, installation, and maintenance requirements for these systems are detailed in IEC 62395-1 and IEC 62395-2.

This standard provides general safety requirements for the installation, operation, maintenance and repair of systems and individual circuits and for trace heating systems designs. These safety considerations concern the protection of persons and the environment against dangers of electrical origin and also against certain dangers of non-electrical origin, common to all types of equipment and installations.

#### 2 Normative references

This clause of Part 1 is applicable, except as follows.

##### *Additions:*

IEC 60519-1:2010, *Safety in electroheating installations – Part 1: General requirements*



IEC 62395-13, *Electrical resistance trace heating systems for industrial and commercial applications – Part 1: General and testing requirements*

IEC 62395-24, *Electrical resistance trace heating systems for industrial and commercial applications – Part 2: Application guide for system design, installation and maintenance*

### 3 Terms and definitions

This clause of Part 1 is applicable with the following additions.

*Additions:*

#### 3.101

##### **ambient temperature**

average temperature of air or another medium in the vicinity of the equipment

Note 1 to entry: Where electrical trace heaters are enclosed in thermal insulation, the ambient temperature is the temperature exterior to such thermal insulation.

[SOURCE: IEC 60050-826:2004, 826-10-03, modified – The content of the note has been modified]

#### 3.102

##### **branch circuit**

portion of the wiring installation between the overcurrent device protecting the circuit and the trace heater(s)

#### 3.103

##### **end termination**

termination, which may be heat producing, applied to a trace heater at the end opposite to that where the power is supplied

[SOURCE: IEC 60050-426:2008, 426-20-04]

#### 3.104

##### **factory fabricated unit**

trace heater cable, tape or device, including the necessary terminations and connections, assembled by the manufacturer

#### 3.105

##### **field assembled unit**

trace heaters supplied in bulk with terminating components to be assembled at the work site

#### 3.106

##### **heat loss**

energy flow from a pipe, vessel or equipment to its surroundings

#### 3.107

##### **heater pad**

trace heater comprising series or parallel connected elements having sufficient flexibility to conform to the shape of the surface to be heated

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<sup>3</sup> Second edition to be published.

<sup>4</sup> First edition (replacing IEC/TS 62395-2:2008) to be published.