



# SLOVENSKI STANDARD

## SIST-TP CEN/TR 14819-2:2006

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Safety recommendations for cableway installations designed to carry persons -  
Prevention and fight against fire - Part 2: Other funicular railways and other installations

Sicherheitsempfehlungen für Seilbahnen für den Personenverkehr - Brandverhütung und  
-bekämpfung - Teil 2: Andere Standseil- und Seilbahnen

Recommandations de sécurité pour les installations à câbles transportant des personnes  
- Prévention et lutte contre les incendies - Partie 2: Autres funiculaires et autres  
installations

Ta slovenski standard je istoveten z: CEN/TR 14819-2:2005

### ICS:

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**Safety recommendations for cableway installations designed to carry persons - Prevention and fight against fire - Part 2: Other funicular railways and other installations**

Recommandations de sécurité pour les installations à câbles transportant des personnes - Prévention et lutte contre les incendies - Partie 2 : Autres funiculaires et autres installations

Sicherheitsempfehlungen für Seilbahnen für den Personenverkehr - Brandverhütung und -bekämpfung - Teil 2: Andere Standseil- und Seilbahnen

This Technical Report was approved by CEN on 29 August 2005. It has been drawn up by the Technical Committee CEN/TC 242.

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**CEN/TR 14819-2:2005 (E)****Foreword**

This Technical Report (CEN/TR 14819-2:2005) has been prepared by Technical Committee CEN/TC 242 "Safety requirements for passenger transportation by rope", the secretariat of which is held by AFNOR.

CEN/TR 14819 comprises the following parts presented under the general title of *Safety recommendations for cableway installations designed to carry persons - Prevention and fight against fire*:

- Part 1: Funicular railways in tunnels
- Part 2: Other funicular railways and other installations

This technical report forms part of the standards programme approved by the CEN Technical Board (CEN/BT) on safety requirements for cableway installations designed to carry persons:

- 1 Safety requirements for cableway installations designed to carry persons - Terminology
- 2 Safety requirements for cableway installations designed to carry persons - General requirements
- 3 Safety requirements for cableway installations designed to carry persons - Calculations
- 4 Safety requirements for cableway installations designed to carry persons - Ropes
- 5 Safety requirements for cableway installations designed to carry persons - Tensioning devices
- 6 Safety requirements for cableway installations designed to carry persons - Drive systems and other mechanical equipment
- 7 Safety requirements for cableway installations designed to carry persons - Carriers
- 8 Safety requirements for cableway installations designed to carry persons - Electrical equipment other than for drive systems
- 9 Safety requirements for cableway installations designed to carry persons - Civil engineering works
- 10 Safety requirements for cableway installations designed to carry persons – Pre-commissioning inspection, maintenance and operational inspection and checks
- 11 Safety requirements for cableway installations designed to carry persons – Recovery and evacuation
- 12 Safety requirements for cableway installations designed to carry persons - Operation
- 13 Safety requirements for cableway installations designed to carry persons - Quality assurance

Together these form a series of standards regarding design, manufacture, construction, maintenance and operation of all cableway installations designed to carry persons.

## Introduction

This draft report has been prepared by a working group set up by TC 242 "Safety requirements for passenger transportation by rope". It responds to a request by the European Commission and CEN and will be of use to operators and designers of installations other than funicular railways in tunnels covered by CEN/TR 14819-1.

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**CEN/TR 14819-2:2005 (E)****1 Scope**

This part of the technical report specifies safety recommendations applicable to the prevention and fighting of fires in funicular railways not in tunnels, aerial ropeways and ski-tows that may endanger the health and safety of persons.

With regard to funicular railways, these recommendations are applicable to those not running in a tunnel and having a pathway alongside the track that does not allow passengers to exit the carrier in less than 5 min. For funicular railways where evacuation of the carrier can be completed within 5 min, the same recommendations may be applied in part according to the results of the safety analysis of the installation.

With regard to these problems of fire, it is essential to take organizational measures relating to operation, but these are not covered in this report.

Requirements for aerial ropeways operating in a tunnel may also be based on CEN/TR 14819-1.

**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.

EN 1907:2005, *Safety requirements for cableway installations designed to carry persons - Terminology*

EN 12397, *Safety requirements for cableway installations designed to carry persons - Operation*

EN 12929-1, *Safety requirements for cableway installations designed to carry persons - General requirements - Part 1: Requirements applicable to all installations*

EN 13243, *Safety requirements for cableway installations designed to carry persons - Electrical equipment other than for drive systems*

EN 13501-1, *Fire classification of construction products and building elements - Part 1: Classification using test data from reaction to fire tests*

EN 50119, *Railway applications - Fixed installations - Electric traction overhead contact lines*

EN 50122-1, *Railway applications - Fixed installations - Part 1: Protective provisions relating to electrical safety and earthing*

EN 50122-2, *Railway applications - Fixed installations - Part 2: Protective provisions against the effects of stray currents caused by d.c. traction systems*

EN 50163, *Railway applications - Supply voltages of traction systems*

EN 50206-2, *Railway applications - Rolling stock - Pantographs: Characteristics and tests - Part 2: Pantographs for metros and light rail vehicles*

EN 50264-1, *Railway applications - Railway rolling stock cables having special fire performance - Standard wall - Part 1: General requirements*

prEN 45545-1, *Railway applications - Fire protection of railway vehicles - Part 1: General*

prEN 45545-2, *Railway applications - Fire protection of railway vehicles - Part 2: Requirements for fire behaviour of materials and components I*



prEN 45545-3, *Railway applications - Fire protection of railway vehicles - Part 3: Fire resistance requirements for fire barriers and partitions*

prEN 45545-4, *Railway applications - Fire protection of railway vehicles - Part 4: Fire safety requirements for railway rolling stock design*

prEN 45545-6, *Railway applications - Fire protection of railway vehicles - Part 6: Fire control and management systems*

prEN 45545-7, *Railway applications - Fire protection of railway vehicles - Part 7: Fire safety requirements for flammable liquid and flammable gas installations*

prEN 62305-1, *Protection against lightning - Part 1: General principles*

EN ISO 13943:2000, *Fire safety – Vocabulary (ISO 13943:2000)*

IEC 60331-11, *Tests for electric cables under fire conditions - Circuit integrity - Part 11: Apparatus - Fire alone at a flame temperature of at least 750 °C*

IEC 60331-21, *Tests for electric cables under fire conditions - Circuit integrity - Part 21: Procedures and requirements - Cables of rated voltage up to and including 0, 6/1, 0 kV*

### 3 Terms and definitions

For the purposes of this technical report, the terms and definitions given in EN 1907:2005, EN ISO 13943:2000 and the following apply:

#### 3.1

##### **fire resistance**

ability of an object to maintain for a specified period the required fire stability, required fire integrity, required thermal insulation and/or any other required function specified in a standardized fire resistance test

NOTE The qualifier "fire resistant" only applies to this ability.

#### 3.2

##### **reaction to fire**

behaviour of a material that, as a result of its own decomposition, feeds a fire to which it is exposed under specified conditions

#### 3.3

##### **fire stability criterion "R"**

criterion determining the ability of an element or a structure to withstand specified loads and/or actions during the appropriate fire resistance test

#### 3.4

##### **fire barrier, flame integrity criterion "E"**

criterion determining the ability of a separating element to prevent the passage of flames and hot gases

#### 3.5

##### **thermal insulation criterion "I", fire break**

criterion determining the ability of a separating element to prevent the passage of heat during a fire resistance test

#### 3.6

##### **REI time, EI time**

minimum time, in min, for which the criteria are met (examples REI 60, EI 30)

## CEN/TR 14819-2:2005 (E)

### 4 General recommendations

#### 4.1 Application of this technical report

The recommendations in this part of the technical report apply to funicular railways not in tunnels, aerial ropeways and ski-tows intended for persons.

#### 4.2 Safety principles

##### 4.2.1 General

The safety principles formulated in EN 12929-1 apply.

In addition, the hazard scenarios and safety measures relating to the scope of this document are to be taken into account.

##### 4.2.2 Hazard scenarios

The following events may bring about hazardous situations that may be avoided or limited by the recommendations in this technical report:

- fire in a carrier;
- fire in the area of the line;
- fire in a station, particularly in a machinery space, an electrical power supply space or a control point;
- fire outside the installation or in adjacent premises or buildings;
- lack or inadequacy of evacuation routes in the stations or along the line;
- inappropriate behaviour by persons.

**NOTE** A certain time may be needed for external rescue services to arrive on site as a result of the location of the situation and meteorological conditions.

##### 4.2.3 Safety measures

Safety measures should be taken to eliminate the hazard scenarios listed in 4.2.2 and to:

- ensure that the passengers in a carrier or persons in the stations avoid being injured by fire or choked by smoke;
- avoid falling, impact or uncontrolled movement of the aerial ropeway carriers in the event of a fire;
- avoid the rope of a ski-tow falling in the event of a fire.

The measures listed in this technical report are design and operational measures intended to:

- avoid a fire resulting in damage to the installation;
- minimize the thermal loads in the installation;
- limit the damaging effects of a fire on safety components by timely detection, alarm and firefighting;

- define adequate characteristics (in particular, reaction to fire and fire resistance) of the safety components taking into account thermal stressing in the event of a fire in the installation;
- provide a fire resistant separation between adjoining areas for an adequate period of time;
- install adequate escape routes in stations and along the line;
- provide personnel and passengers with suitable instructions;
- ensure personnel are competent in matters relating to fire prevention and firefighting.

## 5 Basic recommendations

### 5.1 Measures should be taken:

- to prevent or hinder the initiation of a fire and its spread;
- to prevent a carrier in which a fire has been started from leaving the station and to evacuate the passengers on board.

### 5.2 If a fire starts:

- a) in a funicular carriage:
  - 1) the priority is to evacuate the carrier in less than 5 min. If the installation does not allow this the priority is then recovery; (standards.iteh.ai)
  - 2) in certain cases, evacuation on foot will remain possible; technical and organizational measures should be provided for this. [SIST-TP CEN/TR 14819-2:2006](https://standards.iteh.ai/catalog/standards/sist/837fc057-17b8-446f-8eff-cdd936ec7ba6/sist-tp-cen-tr-14819-2-2006)
- b) on an aerial ropeway with persons on the line, the priority should be to proceed to recovery: the installation should not be stopped. In the event of an unintentional stop, efforts should be made to ensure that the installation can be restarted very rapidly;
- c) in a station or along the route of a ski-tow with persons on the line, suitable operational measures should be taken for evacuation in the event of a fire;
- d) it should also be possible to protect and evacuate persons in stations in all cases.

**5.3** The safety analysis for the installation should take into account the risk of fire and indicate in what way the safety recommendations in this document should be met.

**5.4** When the priority is the recovery of the carriers in the event of a fire, care should be taken in particular to keep the following components able to function:

- carriers;
- ropes and end fixings;
- tensioning devices;
- drive wheel, particularly the lining of the drive wheel;
- drive systems and brakes;
- electrotechnical devices (power supply, control, communication, monitoring devices);