

OHUTUSNÕUDED INIMESTE TRANSPORTIMISEKS
MÕELDUD KÖISTEPAIGALDISTELE. RAJATISED

Safety requirements for cableway installations designed
to carry persons - Civil engineering works

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 13107:2015 sisaldab Euroopa standardi EN 13107:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 13107:2015 consists of the English text of the European standard EN 13107:2015.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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English Version

**Safety requirements for cableway installations designed to carry
persons - Civil engineering works**

Prescriptions de sécurité pour les installations à câbles
transportant des personnes - Ouvrages de génie civil

Sicherheitsanforderungen an Seilbahnen für den
Personenverkehr - Bauwerke

This European Standard was approved by CEN on 3 December 2014.

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Foreword

This document (EN 13107:2015) has been prepared by Technical Committee CEN/TC 242 "Safety requirements for passenger transportation by rope", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2015, and conflicting national standards shall be withdrawn at the latest by December 2015.

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

This document supersedes EN 13107:2004.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2000/9/EC.

For the relationship with the EU Directive 2000/9/EC, see informative Annex ZA, which is an integral part of this document.

With respect to EN 13107:2004, the following significant amendments have been made:

- Since the present standard was enacted, the Eurocodes 0 to 9 have come into force, which is why they have lost the status of a pre-standard "ENV". The Eurocodes are binding in regard to the design and sizing for the entire construction, but also for the area of cableway installations. Many adjustments in this revision phase justify themselves because the updates in relation to these standards resulted in numerous editorial, conceptual, as well as substantive changes.
- Due to various inaccuracies in the translation from English (2004: Original document), some textual changes had to be made in the German and French versions.
- In the German version, a "muss-Formulierung" ["must formulation"] was used consistently at Germany's request for the requirements with mandatory character. In the French version, "doit" is used for this.
- The German spelling rules were taken into account where necessary with "ß" instead of "ss".
- In 5.3.3, the working life of some structural parts has been adjusted to current knowledge.
- In 7.2.3.2, the variable actions of the rope forces in determining the amount of hydraulic braced systems may relate to the nominal base clamping force and not to the upper limit.
- Clause 7 defines, under the payloads, the horizontal action on railing in public areas and in the working platforms, the snow load that is to be considered, as well as the accidental action on attachment points.
- In Clause 7, it has been pointed out that environmental influences are to be established through expert opinion or – if available – national regulations may / shall be used. The environmental impacts have been added to the parameters; in particular the relevant return period has been determined according to whether the action represents a variable or accidental action.
- In Clause 7 "Actions and environmental influences," there were some reallocations of accidental to variable actions (e.g. simultaneous incursion of the operational and safety brake, frequently occurring avalanche impacts, etc.).

- In 7.2 the size of the nosing force has been defined, instead of referring to the carrier standard EN 13796-1. The nosing force is caused by irregularities in the track and shall therefore be determined by EN 13107. Moreover, it has primary effects on the concept and the execution of the track as well as the engineering structures.
- In 9.4.4.2, the permitted value of the support deformation was increased for combined support / compression towers. Moreover, it no longer deals with the threshold values, but with the indicative values for the specified support deformations.
- Subclause 9.5 “Verification of fatigue” has been completely rewritten and updated in accordance with the state of the art.
- In 10.2, some specific rules for manufacturing processes as well as steel grades and quality were adjusted or deleted to comply with Eurocode 3 which was enacted, since the relevant standard is precise and detailed in this regard.
- Subclauses 11.1 to 11.3, were revised based on the current EN 1997-1 and adapted to the needs of the area of cableway installations.
- 11.4 has been re-added to the standard for the public sector because it provides relevant reference to EN 13107 in EN 12929-1.
- 11.6 has been restructured and redrafted. Reference is made to the standard CEN/TC 256/DC 1 for the concept and execution of the track superstructure.
- Subclause 11.8 “Miscellaneous” has been removed altogether. It mainly dealt with the requirements for fire protection, which have been newly recorded in Section 7 (“Fire” with respect to the three aforementioned cableway installation systems).
- In Clause 7, and in Subclause 9.6, references to fire risks that are typical for cableway installations as well as to CEN/TR 14819-1 and CEN/TR 14819-2 have been made. Reference is also made to the national regulations.
- In Clause 12, 12.1 as well as Figure 2 “Safety distances with vehicles” has been deleted. Similar requirements are contained in EN 12929-1. At this point, a “General” subclause with general principles for employee protection has been added.
- Annex A has been editorially revised and adapted to the new terms and definitions.
- Annex B has been adapted to the new terminology in EN 1990 and three new terms and definitions have been added (rope shoe, track rope saddle, friction coefficient). For texts that are quoted from EN 1990 almost word for word, DE applications concerning a “must formulation” had not been implemented.
- Annex C (Deviation A) has been deleted.
- Annex ZA has been updated.

This European Standard is part of a series of standards concerning safety requirements for cableway installations designed for passenger transport. This series consists of the following standards:

- EN 1907, relating to *Terminology*
- EN 12929 (all parts), relating to *General requirements*
- EN 12930, relating to *Calculations*
- EN 12927 (all parts), relating to *Cables*

- EN 1908, relating to *Tensioning devices*
- EN 13223, relating to *Drive systems and other mechanical equipment*
- EN 13796 (all parts), relating to *Carriers*
- EN 13243, relating to *Electrical equipment other than for drive systems*
- EN 13107, relating to *Civil engineering works*
- EN 1709, relating to *Pre-commissioning inspection, maintenance, operational inspection and checks*
- EN 1909, relating to *Recovery and evacuation*
- EN 12397, relating to *Operation*
- EN 12408, relating to *Quality control*

Together these form a series of standards applicable to the design, manufacturer, installation, maintenance and operation of cableway installations designed for passenger transport.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the safety requirements applicable to civil engineering works for cableway installations designed to carry persons. In doing so, the various types of cableway installations and their environment are taken into consideration.

It includes requirements relating to the prevention of accidents and the protection of workers, notwithstanding the application of national regulations.

National regulations regarding building or construction or that are designed to protect particular groups of people remain unaffected.

It does not apply to cableway installations for transportation of goods or to lifts.

This European Standard is applicable to:

- new cableway installations designed to carry persons;
- alterations to existing cableway installations, as far as the safety of civil engineering works or parts of them is involved and no contrary specifications apply.

2 Normative references

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.

EN 795, *Personal fall protection equipment – Anchor devices*

EN 1090-1, *Execution of steel structures and aluminium structures – Part 1: Requirements for conformity assessment of structural components*

EN 1090-2, *Execution of steel structures and aluminium structures – Part 2: Technical requirements for steel structures*

EN 1536, *Execution of special geotechnical work – Bored piles*

EN 1537, *Execution of special geotechnical works - Ground anchors*

EN 1709, *Safety requirements for cableway installations designed to carry persons — Pre-commissioning inspection, maintenance, operational inspection and checks*

EN 1907, *Safety requirements for cableway installations designed to carry persons — Terminology*

EN 1908, *Safety requirements for cableway installations designed to carry persons — Tensioning devices*

EN 1909, *Safety requirements for cableway installations designed to carry persons — Recovery and evacuation*

EN 1990:2002, *Eurocode: Basis of structural design*

EN 1991 (all parts) *Eurocode 1 - Actions on structures*

EN 1992 (all parts), *Eurocode 2: Design and Construction of reinforced concrete structures*

EN 1993 (all parts), *Eurocode 3 - Design and Construction of reinforced concrete structures*

- EN 1993-1-9:2005, *Eurocode 3: Design and Construction of reinforced concrete structures - Part 1-9: Fatigue*
- EN 1994 (all parts), *Eurocode 4: Design of composite steel and concrete structures*
- EN 1995 (all parts), *Eurocode 5: Design of timber structures*
- EN 1996 (all parts), *Eurocode 6 - Design of masonry structures*
- EN 1997 (all parts), *Eurocode 7 - Geotechnical design*
- EN 1998 (all parts), *Eurocode 8 - Design of structures for earthquake resistance*
- EN 1999 (all parts), *Eurocode 9 - Design of aluminium structures*
- EN 12397, *Safety requirements for cableway installations designed to carry persons — Operation*
- EN 12408, *Safety requirements for cableway installations designed to carry persons — Quality control*
- EN 12699, *Execution of special geotechnical work (special geotechnical work): Displacement piles*
- EN 12927 (all parts), *Safety requirements for cableways installation designed to carry persons — Ropes*
- EN 12929 (all parts), *Safety requirements for cableways installation designed to carry persons — General requirements*
- EN 12930, *Safety requirements for cableway installations designed to carry persons — Calculations*
- EN 13223, *Safety requirements for cableways installations designed to carry persons — Drive systems and other mechanical equipment*
- EN 13243, *Safety requirements for cableways installation designed to carry persons — Electrical equipment other than for drive systems*
- EN 13670, *Execution of concrete structures*
- EN 13796 (all parts), *Safety requirements for cableway installations designed to carry persons — Carriers*
- EN 14199, *Execution of special geotechnical labour (special geotechnical work) — Micropiles*
- CEN/TR 14819 (all parts), *Safety recommendations for cableway installations designed to carry persons - Prevention and fight against fire*
- EN ISO 80000-1, *Quantities and units — Part 1: General (ISO 80000-1)*

3 Terms and definitions

For the purposes of this standard, the terms and definitions given in EN 1907, EN 1990 and EN 1991 (all parts) apply.

NOTE Other terms and definitions relating to this standard are listed in B.2.

4 Units and symbols

SI units shall be used in accordance with EN ISO 80000-1.

Symbols used in this standard conform to the Structural Eurocodes EN 1991 (all parts) to EN 1999 (all parts) and are defined where they appear for the first time in the text.