

# **Ohutusnõuded inimeste transportimiseks mõeldud kõistepaigaldistele. Arvutused**

Safety requirements for cableway installations  
designed to carry persons - Calculations

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 12930:2004 sisaldab Euroopa standardi EN 12930:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 21.12.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 12930:2004 consists of the English text of the European standard EN 12930:2004.</p> <p>This document is endorsed on 21.12.2004 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><b>Käsitlusala:</b></p> <p>This European Standard specifies the general safety requirements applicable to the calculations for cableway installations designed to carry persons. This standard is applicable to the various types of installations and takes into account their environment.</p>	<p><b>Scope:</b></p> <p>This European Standard specifies the general safety requirements applicable to the calculations for cableway installations designed to carry persons. This standard is applicable to the various types of installations and takes into account their environment.</p>
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**ICS** 45.100

**Võtmesõnad:**

ICS 45.100

English version

## Safety requirements for cableway installations designed to carry persons - Calculations

Prescriptions de sécurité pour les installations à câbles  
transportant des personnes - Calculs

Sicherheitsanforderungen für Seilbahnen für den  
Personenverkehr - Berechnungen

This European Standard was approved by CEN on 23 August 2004.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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## Foreword

This document (EN 12930:2004) 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 April 2005, and conflicting national standards shall be withdrawn at the latest by April 2005.

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(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

This document forms part of the standards programme approved by the CEN Technical Board on safety requirements for cableway installations designed to carry persons.

This programme contains the following standards:

- 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 — Tension 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 checks
- 11) Safety requirements for cableway installations designed to carry persons — Evacuation and rescue
- 12) Safety requirements for cableway installations designed to carry persons — Operation
- 13) Safety requirements for cableway installations designed to carry persons — Quality assurance

This series of standards forms a complete set with regard to the design, production, installation, maintenance and operation of any cableway installation designed to carry persons.

With regard to ski-tows, the text of this document is based on the work of the International Ropeway Organization (OITAF).

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

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## 1 Scope

This document specifies the general safety requirements applicable to the calculations for cableway installations designed to carry persons. This document is applicable to the various types of installations and takes into account their environment.

This document contains:

- general requirements for calculations and their presentation;
- general requirements relating to the actions to be taken into account in the calculation of components as a basis for the requirements of the standards EN 13223, EN 13107, EN 12927 (Parts 1 to 6) and EN 1908;
- requirements relating to verification of ropes by calculation;
- requirements relating to the determination of the drive power;
- requirements for the actions of the ropes and carriers on the support structures and for the deformations of these support structures.

This document does not apply to installations for the transportation of goods nor to inclined lifts.

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

prEN 1907:2004, *Safety requirements for cableway installations designed to carry persons — Terminology.*

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

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

ENV 1991-1, *Eurocode 1 — Basis of design and actions on structures — Part 1: Basis of design.*

ENV 1991-2-1, *Eurocode 1 — Basis of design and actions on structures — Actions on structures — Part 2-1: Densities, self-weight and imposed loads.*

ENV 1991-2-4, *Eurocode 1 — Basis of design and actions on structures — Actions on structures — Part 2-4: Wind loads.*

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

EN 12408, *Safety requirements for cableway installations designed to carry persons — Quality assurance.*

EN 12927-1, *Safety requirements for passenger transportation by rope — Ropes — Part 1: Selection criteria for ropes and their end fixings.*



EN 12927-2, *Safety requirements for cableway installations designed to carry persons — Ropes — Part 2 : Safety factors.*

EN 12927-3, *Safety requirements for cableway installations designed to carry persons — Ropes — Part 3 : Long splicing of 6 strand hauling, carrying-hauling and towing ropes.*

EN 12927-4, *Safety requirements for cableway installations designed to carry persons — Ropes — Part 4 : End fixings.*

EN 12927-5, *Safety requirements for cableway installations designed to carry persons — Ropes — Part 5 : Storage, transportation, handling and tensioning.*

EN 12927-6, *Safety requirements for cableway installations designed to carry persons — Ropes — Part 6 : Discard criteria.*

EN 12927-7, *Safety requirements for cableway installations designed to carry persons — Ropes — Part 7 : Inspection, repair and maintenance.*

EN 12927-8, *Safety requirements for cableway installations designed to carry persons — Ropes — Part 8 : Magnetic rope testing (MRT).*

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

EN 12929-2, *Safety requirements for cableway installations designed to carry persons — General requirements — Part 2 : Additional requirements for jig back bicable aerial ropeways without carrier truck brakes.*

EN 13107, *Safety requirements for cableway installations designed to carry persons — Civil engineering works.*

EN 13223, *Safety requirements for cableway installations designed to carry persons — Drive systems and other mechanical equipment.*

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

prEN 13796-1, *Safety requirements for cableway installations designed to carry persons — Carriers — Part 1 : Grips, carrier trucks, on-board brakes, cabins, chairs, carriages, maintenance carriers, tow-hangers.*

prEN 13796-2, *Safety requirements for cableway installations designed to carry persons — Carriers — Part 2 : Slipping resistance tests for grips.*

prEN 13796-3, *Safety requirements for cableway installations designed to carry persons — Carriers — Part 3 : Fatigue testing.*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in prEN 1907:2004 and the following apply.

#### 3.1

##### **rope calculation**

calculation of required dimensions for ropes on the basis of the tension forces determined from the calculation of the longitudinal profile