



**SLOVENSKI STANDARD**  
**SIST EN 12927-6:2005**  
**01-januar-2005**

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Safety requirements for cableway installations designed to carry persons - Ropes - Part 6: Discard criteria

Sicherheitsanforderungen für Seilbahnen für den Personenverkehr - Seile - Teil 6: Ablegekriterien

**ITeh STANDARD PREVIEW**

Prescriptions de sécurité pour les installations à câbles transportant des personnes - Câbles - Partie 6 : Criteres de dépose

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**Ta slovenski standard je istoveten z: EN 12927-6:2004**

**ICS:**

45.100 U] |^{ æÁ æÖã } æ^ Cableway equipment

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ICS 45.100

English version

## Safety requirements for cableway installations designed to carry persons - Ropes - Part 6: Discard criteria

Prescriptions de sécurité pour les installations à câbles transportant des personnes - Câbles - Partie 6 : Critères de dépose

Sicherheitsanforderungen für Seilbahnen und Schleppaufzüge im Personenverkehr - Seile - Teil 6: Ablegekriterien

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

CEN 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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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.

CEN members are the national standards bodies of 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 United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

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## Foreword

This document (EN 12927-6:2004) 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 EN 12927 includes the following parts under the general title "Safety requirements for cableway installations designed to carry persons – Ropes":

- *Part 1: Selection criteria for ropes and their end fixings*
- *Part 2: Safety factors*
- *Part 3: Long splicing of 6 strand hauling, carrying-hauling and towing ropes*
- *Part 4: End fixings*
- *Part 5: Storage, transportation, installation and tensioning*
- *Part 6: Discard criteria*
- *Part 7: Inspection, repair and maintenance*
- *Part 8: Magnetic rope testing (MRT)*

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This European Standard forms part of the standards programme adopted by the CEN Technical Board in relation of safety requirements for passenger transportation by rope. This programme includes 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 - 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, production, maintenance and operation of all installations for passenger transportation by rope.

In respect of ski-tows, the drafting of this European Standard has been guided by the works of the International Organisation for Transportation by rope (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 United Kingdom.

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## 1 Scope

This part of EN 12927 specifies the safety requirements applicable to discard criteria for steel ropes for passenger transportation by rope. This standard is applicable to the various types of installations and takes into account their environment.

This part of EN 12927 applies to all types of ropes and end fixing used in cableways for passenger transport.

Some requirements concern synthetic ropes.

Requirements relating to the protection of workers are not included in this part of EN 12927.

This part of EN 12927 is not applicable 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 inspection 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 - Tensioning devices.*

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

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 cableway installations designed to carry persons - 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, installation and tensioning.*

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 passenger transportation by rope - General requirements - Part 1: Requirements applicable to all installations.*

## EN 12927-6:2004 (E)

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

EN 12930, *Safety requirements for cableway installations designed to carry persons – Calculations.*

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 discard criteria

level of deterioration at which the rope or the end fixing is declared unfit for further service

NOTE In certain cases a rope can be repaired (see EN 12927-3 and EN 12927-7).

#### 3.2 reference length

the length of rope over which the value of a specified characteristic is measured or assessed e.g.  $6 \times d$  ( $6 \times$  nominal diameter of the rope)

#### 3.3 loss in metallic area ( $I_{ma}$ )

reduction in area expressed as a percentage of the nominal metallic cross-sectional area of the new rope, taking into account the effects of broken wires and the effect of corrosion and wear

#### 3.4 main body of the rope

all the length of rope excluding any sections in end fixing or long splice

#### 3.5 additional tensioning device

additional device intended to hold the tension in a rope in case of failure of the main tensioning device

### 4 Symbols

$d$  nominal diameter of the rope.



## 5 General requirements

### 5.1 Application of this standard

The requirements of this document apply to all installations along with those of EN 1709, EN 1908, EN 1909, EN 12397, EN 12408, EN 12927-1, EN 12927-2, EN 12927-3, EN 12927-4, EN 12927-5, EN 12927-7, EN 12927-8, EN 12929-1, EN 12929-2, EN 12930, EN 13107, EN 13223, EN 13243, prEN 13796-1, prEN 13796-2 and prEN 13796-3.

### 5.2 Safety principle

#### 5.2.1 General

Irrespective of whether the rope is inspected by MRT or visual means, the same wire broken in several places over the stated reference length shall be regarded as a single broken wire.

Loose wires and wires repaired by welding, brazing or gluing shall be regarded as broken wires.

Ropes shall be discarded if their condition cannot, or can no longer, be assessed with the current methods of inspection.

After an external event (lightening, derailment,.etc.) the discard criteria shall be checked by a competent person before further operation.

#### 5.2.2 Hazard scenarios

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Especially the following events may lead to hazardous situations which may be avoided or limited by the requirements of this document:

- [SIST EN 12927-6:2005  
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- a) excessive decrease of the metallic cross sectional area may lead to the breakage of the rope;
  - b) fatigue breaks, corrosion and wear may lead to a failure of end fixing and of tension ropes;
  - c) deterioration/damaging of the structure of the rope can lead to deropement or to insufficient attachment of the grip;
  - d) slipping apart of two rope ends connected by a long splice may lead to a failure of the long splice.

#### 5.2.3 Safety measures

- a) The decrease of the metallic cross sectional area shall be limited by repair according to EN 12927-7 or by discarding the rope according to this standard;
- b) the risk of a failure of end fixing and of tension ropes may be reduced by discarding by timeout (hours or years) according to this standard;
- c) deterioration/damaging of the structure of the rope shall be limited by repair according to EN 12927-7 or by discarding the rope according to this standard;
- d) the risk of slipping apart spliced rope ends may be reduced by repair according to EN 12927-3 and EN 12927-7 or by discarding the long splice according to this standard.