



SLOVENSKI STANDARD

SIST EN 12927-1:2005

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Safety requirements for cableway installations designed to carry persons - Ropes - Part 1: Selection criteria for ropes and their end fixings

Sicherheitsanforderungen für Seilbahnen für den Personenverkehr - Seile - Teil 1: Auswahlkriterien für Seile und Seilendbefestigungen

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Prescriptions de sécurité des installations à câbles transportant des personnes - Câbles - Partie 1 : Criteres de sélection des câbles et de leurs attaches d'extrémité

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Ta slovenski standard je istoveten z: **EN 12927-1:2004**

ICS:

45.100 U] i^{ aá aó } a^ Cableway equipment

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ICS 45.100

English version

Safety requirements for cableway installations designed to carry persons - Ropes - Part 1: Selection criteria for ropes and their end fixings

Prescriptions de sécurité des installations à câbles transportant des personnes - Câbles - Partie 1 : Critères de sélection des câbles et de leurs attaches d'extrémité

Sicherheitsanforderungen für Seilbahnen und Schleppaufzüge des Personenverkehrs - Seile - Teil 1: Auswahlkriterien für Seile und Seilbefestigungen

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
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Foreword

This document (EN 12927-1:2004) 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 passenger transportation by rope - 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 the selection criteria for ropes and their end fixings for installations for passenger transportation by rope. Its requirements are to be met taking into account the various types installations systems and their environment.

This part of EN 12927 provides guidance on the selection of ropes and their end fixing for use on cableways.

It does not apply for 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 1492-4, *Textile slings – Safety – Part 4: Lifting slings for general service made from natural and man-made fibre ropes.*

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 12385-2:2002, *Steel wire ropes - Safety - Part 2: Definitions, designation and classification.*

EN 12385-8, *Steel wire ropes - Safety - Part 8: Stranded hauling and carrying-hauling ropes for cableway installations designed to carry persons.*

EN 12385-9, *Steel wire ropes - Safety - Part 9: Locked coil carrying ropes for cableway installations designed to carry persons.*

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 12927-2, *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 12927-4:2004, *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 12927-6, *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 12927-1:2004 (E)

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 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*.

EN 13411-3:2004, *Terminations for steel wire ropes - Safety - Part 3: Ferrules and ferrule-securing*.

EN 13411-5:2003, *Terminations for steel wire ropes - Safety - Part 5: U-bolt wire rope grips*.

EN 13411-6:2004, *Terminations for steel wire ropes – Safety – Part 6: Asymmetric wedge socket*.

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*.

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3 Terms and definitions

For the purposes of this document, the terms and definitions given in prEN 1907:2004, EN 12385-2:2002, EN 13411-5:2003, EN 12927-4:2004, EN 13411-3:2004, EN 13411-6:2004 and the following apply.

3.1

nominal diameter

dimension by which the rope is designed

4 General requirements

The requirements of this document apply to all installations along with those of EN 1709, EN 1908, EN 1909, EN 12397, EN 12408, EN 12927-2, EN 12927-3, EN 12927-4, EN 12927-5, EN 12927-6, 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 Safety principle

5.1 General

The safety principles set out in EN 12929-1 apply.

5.2 Hazard scenarios

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

- a) The breakage of a rope or the failure of an end fixing may lead to the following hazardous situations:
 - 1) Falling down of rope with the risk of carrier crash and the risk of impact to persons;
 - 2) Release of the elastic potential energy of a tensioned / extended rope;
- b) Deterioration/damages of the structure of the rope can lead to the following hazardous situations:
 - 1) Derailment of rope (deropement);
 - 2) Derailment of carrier truck.

5.3 Safety measures

The safety measures to be taken to eliminate the danger factors listed under 5.2 are to select ropes and end fixings in accordance with this part of this standard in order to apply and to put into effect also the other parts of this standard.

6 Safety requirements

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6.1 Ropes

Ropes shall be selected in accordance with Table 1.

"Hercules" ropes shall only be selected to replace "Hercules" ropes on existing installations.

Locked coil ropes shall be in accordance with EN 12385-9.

EN 12385-9 can be used for all applications for locked coil ropes according to Table 1.

Stranded ropes shall be in accordance with EN 12385-8.

Fiber ropes shall be in accordance with EN 1492-4

6.2 End fixings

End fixings shall be selected in accordance with Table 2.