SLOVENSKI STANDARD

SIST EN 12927-8:2005

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Varnostne zahteve za ǵiļ niġke naprave za prevoz oseb ï Vrvi ï 8. del: Pregledi vrvi z magnetno induktivno metodo

Safety requirements for cableway installations designed to carry persons - Ropes - Part 8: Magnetic rope testing (MRT)

Sicherheitsanforderungen für Seilbahnen für den Personenverkehr - Seile - Teil 8: Magnetische Seilprüfung (MRT)

Prescriptions de sécurité pour les installations à câbles transportant des personnes - Câbles - Partie 8 : Contrôles non-destructifs par contrôle électromagnétique

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45.100	Oprema za ǵiļ nice	Cableway equipment

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Sicherheitsanforderungen für Seilbahnen und Schleppaufzüge des Personenverkehrs - Seile - Teil 8: Zerstörungsfreie Prüfungen

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.

EUROPEAN COMMITTEE FOR STANDARDIZATION
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Contents

Foreword

This document (EN 12927-8:2004) 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of an identical text or by endorsement, at the latest by April 2005, and conflicting national standards shall be withdrawn at the latest by April 2005.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 consists of 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)*

This European Standard forms part of the standards programme adopted by the CEN Technical Board (CEN/BT) in relation to safety requirements for passenger transportation by rope.

This programme comprises 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.

Introduction

Magnetic ropes testing is carried out as a supplement to visual rope inspection and is used to ensure the safe operation of ropes in service, with the advantage that it provides valuable information about the internal condition of the rope.

In the context of this document, MRT equipment is categorised as either electromagnetic or permanent magnetic equipment using magnetic-flux and/or magnetic flux leakage principles and capable of detecting discontinuities and/or changes in metallic cross-sectional area in ferromagnetic wire ropes.

The non-destructive magnetic rope testing (MRT) of ferro-magnetic steel wire ropes is a special field often involving the use of dedicated equipment for the testing of particular types of rope.

1 Scope

This part of EN 12927 specifies the minimum requirements of MRT equipment and procedures for use in the examination of steel wire ropes used on cableways for passenger transport.

Performance requirements and testing of MRT equipment and qualification of personnel engaged in carrying out MRT are also included.

This part of EN 12927 does not include requirements relating to the protection of workers.

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 - Precommissioning inspection, maintenance, operational inspection and checks*

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

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

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

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in prEN 1907:2004, in EN 12385-2:2002 and the following apply.

3.1
single function instrument
instrument which detects either local discontinuities (LD) or loss of metallic cross-sectional area (LMA)

3.2
dual function instrument
instrument which simultaneously detects losses of metallic cross-sectional area (LMA) and local discontinuities (LD)

3.3
local discontinuity (LD)
localised fault or defect such as a broken or damaged wire or a corrosion pit on a wire

3.4
background noise
random variations in the signal caused by the characteristics of the system

3.5
signature
the signals on the test recording display as the rope travels through the test head on the first occasion that it is tested. The signature is taken as the datum upon which in-service deterioration effects are referred. The signature reflects the construction of the rope and changes in magnetic characteristics of the rope among its length, e.g. magnetic permeability differences

3.6
test head
device on that part of the test equipment positioned around the rope during testing which generates the magnetising field and contains the detecting or sensing elements

3.7
wire break (WB)
indication from the LD channel of the test equipment specifically identified as an internal or external wire break type

3.8
loss of metallic cross sectional area (LMA)
LMA is the result of the comparison between a reference metallic cross sectional area and a present metallic cross sectional area of the rope as measured by MRT. It is usually expressed as a percentage

4 Symbols and abbreviations

d nominal rope diameter