Steel wire ropes – Safety –
Part 8: Stranded hauling and carrying-hauling ropes for cableway installations designed to carry persons

English version

Steel wire ropes - Safety - Part 8: Stranded hauling and carrying-hauling ropes for cableway installations designed to carry persons

Câbles en acier - Sécurité - Partie 8: Câbles tracteurs et porteurs-tracteurs à torons pour les installations destinées au transport de personnes

Drahtseile aus Stahldraht - Sicherheit - Teil 8: Zug- und Zug-Trag-Litzenseile für Seilebahnen zum Transport von Personen

This European Standard was approved by CEN on 16 November 2001.

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EN 12385-8:2002 (E)

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Foreword

This document (EN 12385-8:2002) has been prepared by Technical Committee CEN/TC 168, “Chains, ropes, webbing, slings and accessories – Safety”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by April 2003, and conflicting national standards shall be withdrawn at the latest by April 2003.

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 EC Directive(s).

For relationship of this Part with EU Directives, see informative Annex ZA, which is an integral Part of this document.

The other Parts of EN 12385 are:

- Part 1: General requirements
- Part 2: Definitions, designation and classification
- Part 3: Information for use and maintenance
- Part 4: Stranded ropes for general lifting applications
- Part 5: Stranded ropes for lifts
- Part 6: Stranded ropes for mine shafts
- Part 7: Locked coil ropes for mine shafts
- Part 9: Locked coil carrying ropes for cableway installations designed to carry persons
- Part 10: Spiral ropes for general structural applications

Part 1 provides the general requirements of Parts 4 to 10.

This is the first edition of this Part.

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

This Part of this European Standard has been prepared to be a harmonized standard to provide one means of complying with the essential safety requirements of the Directive relating to cableway installations designed to carry persons.

During the preparation of this standard, it was assumed that a negotiation would take place between the purchaser and the manufacturer concerning the intended purpose of the rope.

Although tables of breaking forces and masses are provided for a number of the more common classes, diameters and rope grades, this Part of this standard is not limited to those given, providing all of the other requirements are met.

1 Scope

This Part of this European Standard specifies the particular materials, manufacturing and testing requirements for stranded steel wire ‘hauling’ and ‘carrying-hauling’ ropes for cableway installations designed to carry persons.

The particular hazards covered by this Part are identified in Clause 4.

The rope grade is limited to 1960.

Minimum breaking forces for the more common classes, sizes and grades of rope are provided in tables 2, 3 and 4.

Stranded tension ropes and ski-tow ropes are covered by EN 12385-4.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 10264-3, Steel wire and wire products – Steel wire for ropes – Part 3: Cold drawn and cold-shaped non-alloyed steel wire for heavy duty applications.


prEN 12408, Safety requirements for cableways for passenger transportation by rope - Quality control.

DIN 21258:1986, Preservative compounds for koepe friction drive winding ropes in mining – Safety requirements and testing.

DIN 53521, Determination of the behaviour of rubber and elastomers when exposed to fluids and vapours.

ISO 2592, Determination of flash and fire points – Cleveland open cup method.
3 Terms and definitions

For the purposes of this European Standard, the terms and definitions in EN 12385-2 apply.

4 List of hazards

In addition to the hazards identified in clause 4 of Part 1, the hazard associated with uncontrolled relative movement between the rope and the driving sheave, when applicable, is also identified.

5 Safety requirements and/or measures

5.1 General

In addition to the requirements given in 5.2 to 5.7, the requirements shall also conform to those given in Part 1.

The manufacturer shall also comply with EN 12408.

5.2 Materials

5.2.1 Wire

Wires before ropemaking shall conform to EN 10264-3.

The tensile strength grades of the wires shall be subjected to the limits given in Table 1.

<table>
<thead>
<tr>
<th>Rope grade</th>
<th>Wire tensile strength grade, N/mm²</th>
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<tr>
<td></td>
<td>Minimum</td>
</tr>
<tr>
<td>1570</td>
<td>1370</td>
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<tr>
<td>1770</td>
<td>1570</td>
</tr>
<tr>
<td>1960</td>
<td>1770</td>
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</table>

5.2.2 Core

The core shall be one of the following types

a) fibre;
b) solid polymer;
c) non-magnetic metallic covered with solid polymer;
d) steel covered with solid polymer;
e) steel, as an independent wire rope (IWRC) or wire strand (WSC).

5.2.3 Lubricant

The properties of the lubricant shall conform with the requirements of annex A.

NOTE The purchaser should specify any particular lubricant (see Introduction).
5.3 Rope manufacture

5.3.1 Lubrication

Lubrication shall be generally limited to the strands.

NOTE The purchaser should specify any particular lubrication requirements (see Introduction).

5.3.2 Construction

The construction shall be either

a) one of those covered by the three classes given in Tables 2 to 4; or
b) another single layer rope construction as specified by the manufacturer and covered by the respective classes in EN 12385-2.

NOTE Strands can be compacted.

5.3.3 Rope grade

The rope grade shall be not less than 1570 or higher than 1960.

NOTE The rope grades are generally 1570, 1770 or 1960 although intermediate rope grades can also be specified.

For the more common classes of ropes, refer to Tables 2 to 4, the rope grade shall be used in the calculation of breaking force. (See annex C).

5.3.4 Waviness

Ropes shall be measured for waviness in accordance with annex B. The amount of waviness measured over a length equivalent to 3 rope lay lengths shall be not more than 0,01 d + 0,2 mm.

5.4 Diameter

5.4.1 Tolerances

When measured in accordance with 6.7 the actual diameter shall be within + 1 % and + 5 % of the nominal diameter with the rope under load on the closing machine.

5.4.2 Differences between diameter measurements

The difference between any two of the four measurements taken in accordance with 6.7 and expressed as a percentage of nominal diameter shall not exceed 4 %.