



SLOVENSKI STANDARD SIST EN 564:2023

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Nadomešča:
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Gorniška oprema - Pomožne vrvi - Varnostne zahteve in preskusne metode

Mountaineering equipment - Accessory cords - Safety requirements and test methods

Bergsteigerausrüstung - Reepschnur - Sicherheitstechnische Anforderungen und Prüfverfahren

Équipement d'alpinisme et d'escalade - Cordelettes - Exigences de sécurité et méthodes d'essai

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Ta slovenski standard je istoveten z: **EN 564:2023**

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97.220.40	Oprema za športe na prostem in vodne športe	Outdoor and water sports equipment
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EUROPEAN STANDARD

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English Version

Mountaineering equipment - Accessory cords - Safety requirements and test methods

Équipement d'alpinisme et d'escalade - Cordelettes -
Exigences de sécurité et méthodes d'essai

Bergsteigerausrüstung - Reepschnur -
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This European Standard was approved by CEN on 25 December 2022.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 564:2023) has been prepared by Technical Committee CEN/TC 136 “Sports, playground and other recreational facilities and equipment”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by October 2023 and conflicting national standards shall be withdrawn at the latest by October 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document will supersede EN 564:2014.

In comparison with the previous edition, the following technical modifications have been made:

- a) nominal diameter 5,5 mm is introduced in 4.2;
- b) new subclause 4.4 added regarding the performance of a knotted loop;
- c) some additions in Clause 7 Manufacturer's instructions and information.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

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

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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

EN 564:2023 (E)**1 Scope**

This document specifies safety requirements and test methods for accessory cords, supplied on a drum or in separate lengths, for use in mountaineering including climbing.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 ISO 2307:2019, *Fibre ropes — Determination of certain physical and mechanical properties (ISO 2307:2019)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1 accessory cord

cord that is intended to withstand forces, but not intended to absorb energy

4 Safety requirements**4.1 Construction**

An accessory cord shall be made in a kernmantel construction and have a nominal diameter of 4 mm to 8 mm.

4.2 Diameter

The nominal diameter d_{nom} shall be one of the values given in Table 1.

The limit deviation between the effective value d_{eff} and the given nominal diameter shall be in the range of $\begin{pmatrix} +0,7 \\ -0,2 \end{pmatrix}$ mm.

For the nominal diameter of 5,5 mm, the deviation between the value on the given nominal diameter shall be in the range of $\begin{pmatrix} +0,2 \\ -0,2 \end{pmatrix}$ mm.

The effective diameter shall be determined according to 5.3.

Table 1 — Nominal diameter and minimum tensile strength

Nominal diameter d_{nom} mm	Minimum tensile strength F_{min} kN
4	3,2
5	5,0
5,5	6,1
6	7,2
7	9,8
8	12,8

4.3 Tensile strength

4.3.1 The tensile strength of the accessory cord shall be not less than the value of F_{min} , (see Table 1) calculated using Formula (1) to one decimal place:

$$F_{\text{min}} = d_{\text{nom}}^2 \times f \quad (1)$$

where

d_{nom} is the nominal diameter, in millimetres;

f is 200 N/mm².

4.3.2 The tensile strength shall be determined according to 5.4.

4.4 Performance of the knotted loop

The performance shall be determined according to 5.5 using one loop with an Overhand knot (see Figure 1) and a second loop with a Double Fisherman's knot (see Figure 2). Additional knot(s) could be tested if claimed by the manufacturer according to the manufacturer's instructions and information. The strength value is determined by either the breaking strength or the maximum slipping load. The manufacturer shall provide the strength value of each knot tested as well as how to make the knot according to Clause 7 f).

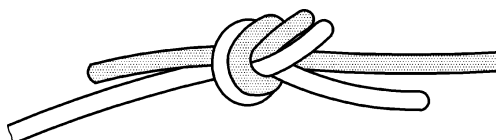


Figure 1 — Overhand knot

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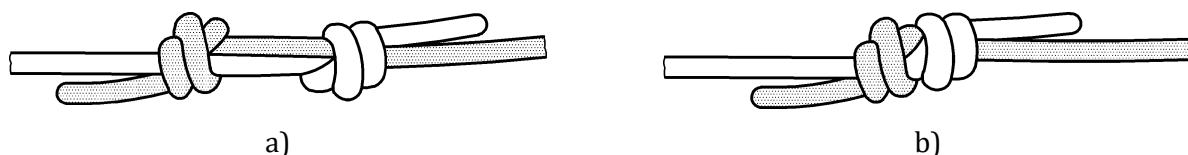


Figure 2 — Double Fisherman's knot

NOTE In Figure 1 and Figure 2, the different colours of the two accessory cord ends are only to illustrate how the knots are made.

4.5 Mass per unit length

This mass shall be determined according to 5.6 and given as information according to Clause 7 d).

5 Test methods

5.1 Test sample

5.1.1 Carry out the test described in 5.4 on one test sample.

5.1.2 Carry out the tests described in 5.5 on one new test sample for each different knotted loop.

5.2 Conditioning

The conditioning applies for all tests in this document. Dry the test samples for at least 24 h in an atmosphere of (50 ± 5) °C and less than 20 % relative humidity. Then condition these test samples in an atmosphere of (23 ± 2) °C and (50 ± 2) % relative humidity for at least 72 h. Then start testing these samples at a temperature of (23 ± 5) °C within 10 min.

5.3 Diameter

Measure the actual diameter d_{eff} under a load of $(4 \pm 0,05)$ kg after the latter has been applied for (60 ± 15) s.

Ensure that the cross-sectional area of the accessory cord is not subjected to any deformation during the measurement.

Take the measurements in two directions around the diameter, starting at points 90° apart, at each of three locations approximately 300 mm apart. The length of the contact areas of the measuring instrument shall be (50 ± 1) mm.

Report the arithmetic mean of the six measurements, to the nearest 0,1 mm.

5.4 Determination of tensile strength

Carry out the determination of the tensile strength to breakage by using a tensile testing machine and fixing devices in accordance with EN ISO 2307:2019, 5.1.

The minimum free length between attachment points shall be 200 mm.

Determine the loading speed, v , as a function of the free length of the test sample, using Formula (2):

$$v = (0,5 \pm 0,1) l \quad (2)$$

where

v is the loading speed in millimetres per minute;

l is the free length in millimetres between points of attachment.

5.5 Determination of the knotted loop performance

Make a knotted loop of (500 ± 100) mm length overall when laid flat by using the knots according to 4.4. With each knot, carry out the determination of the breaking strength or the maximum sliding load by using a tensile test machine.

Attach the knotted loop between two bars offering a contact radius of $(5 \pm 0,05)$ mm to the loop and with a mean roughness value not exceeding $0,8 \mu\text{m}$ and a peak to valley height not exceeding $6,3 \mu\text{m}$.

Use a loading speed of $250 \text{ mm/min} \pm 20 \%$.

Apply a force until either the knotted loop breaks or the knot slips undone and record the maximum value.

5.6 Determination of mass per unit length

Carry out the test with a minimum free length between points of attachment of $1\,200$ mm.

NOTE There is no requirement for any particular type of fixing device.

Load the test sample without shock by means of a $(4 \pm 0,05)$ kg test mass.

Retain the load for (60 ± 15) s and mark a reference length of $(1\,000 \pm 1)$ mm, with a distance between the marks and the points of attachment of at least 100 mm.

Release the load and cut the marked part from the test sample and determine its mass to the nearest gram per metre.

Report the mass per unit length in grams per metre, to at least two significant figures.

6 Marking

The drum or production-line packaging of accessory cords shall be marked with at least the following items:

- a) the number of this document, i.e. EN 564:2023;
- b) name and address of the manufacturer;
- c) nominal diameter of the accessory cord as specified in 4.2;
- d) tensile strength which the manufacturer ensures at the time of manufacturing;
- e) if accessory cord is supplied on a drum and consists of more than one piece, the number of pieces shall be stated on the drum;
- f) month and year of manufacture.

EN 564:2023 (E)**7 Manufacturer's instructions and information**

The accessory cord shall be supplied with an explanatory leaflet containing at least the following items:

- a) name and address of the manufacturer;
- b) the number of this document, i.e. EN 564:2023;
- c) nominal diameter of the accessory cord as specified in 4.2;
- d) mass per unit length of the accessory cord as specified in 4.5;
- e) tensile strength of the accessory cord which the manufacturer ensures at the time of manufacturing;
- f) the performance of each knotted loop as tested according to 5.5 which the manufacturer ensures at the time of manufacturing;
- g) if a knot other than an overhand knot and a double fisherman's knot are claimed by the manufacturer, the performance of the loop made with that knot;
- h) illustrations showing how to make the different knots tested according to 5.5;
- i) use of the product;
- j) warning of the risk of using knots not recommended in the manufacturer's instructions and information;
- k) how to choose other components for use in the system;
- l) how to maintain/service the product, on the effects of chemical reagents and how to disinfect the product without adverse effect;
- m) lifespan of the product or how to assess it;
- n) after a serious fall the accessory cord should be withdrawn from use as soon as possible;
- o) influence of wet and icy conditions;
- p) danger of sharp edges;
- q) influence of storage and ageing due to use;
- r) the meaning of any markings directly or indirectly relating to health and safety on the product.

8 Packaging

If the accessory cord is supplied on a drum and consists of more than one piece, the ends of the pieces shall be clearly visible and not joined together.