



**SLOVENSKI STANDARD**  
**oSIST prEN 17520:2020**  
**01-julij-2020**

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**Gorniška oprema - Vrvi z zaključno samozaporno zanko - Zahteve in preskusne metode**

Mountaineering equipment - Self-belaying lanyards - Requirements and test methods

Bergsteigerausrüstung - Selbstsichernde Verbindungsmittel - Anforderungen und Prüfverfahren

Équipement d'alpinisme et d'escalade - Longes d'auto-assurance - Exigences et méthodes d'essai

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**Ta slovenski standard je istoveten z: prEN 17520**

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**ICS:**

97.220.40	Oprema za športe na prostem in vodne športe	Outdoor and water sports equipment
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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 17520**

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English Version

## Mountaineering equipment - Self-belaying lanyards - Requirements and test methods

Équipement d'alpinisme et d'escalade - Longes d'auto-  
assurance - Exigences et méthodes d'essai

Bergsteigerausrüstung - Selbstsichernde  
Verbindungsmittel - Anforderungen und Prüfverfahren

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 136.

If this draft becomes a European Standard, 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.

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

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## European foreword

This document (prEN 17520:2020) 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 document is currently submitted to the CEN Enquiry.

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**prEN 17520:2020 (E)**

## **Introduction**

The text of this document is based on the former UIAA-Standard 109:2018 (Union Internationale des Associations d'Alpinisme/International mountaineering and climbing federation), which was developed with international participation.

This document is one of a package of standards for mountaineering equipment, see Annex A.

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## 1 Scope

This document applies to lanyards intended to be the primary connection between the climber and the belay stance with the ability of withstanding a dynamic impact.

NOTE Lanyards intended only for positioning or for rope courses are not covered by this document (e.g. daisy chain).

## 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 892, *Mountaineering equipment - Dynamic mountaineering ropes - Safety requirements and test methods*

EN 12275, *Mountaineering equipment - Connectors - Safety requirements and test methods*

## 3 Terms and definitions

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

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

— ISO Online browsing platform: available at <http://www.iso.org/obp>

— IEC Electropedia: available at <http://www.electropedia.org/>

### 3.1

#### **personal belay lanyard**

flexible connecting element able to absorb energy in case of fall, with at least two connecting points, used to connect the user's harness to the belay stance and possibly to a climbing device

### 3.2

#### **adjustable personal belay lanyard**

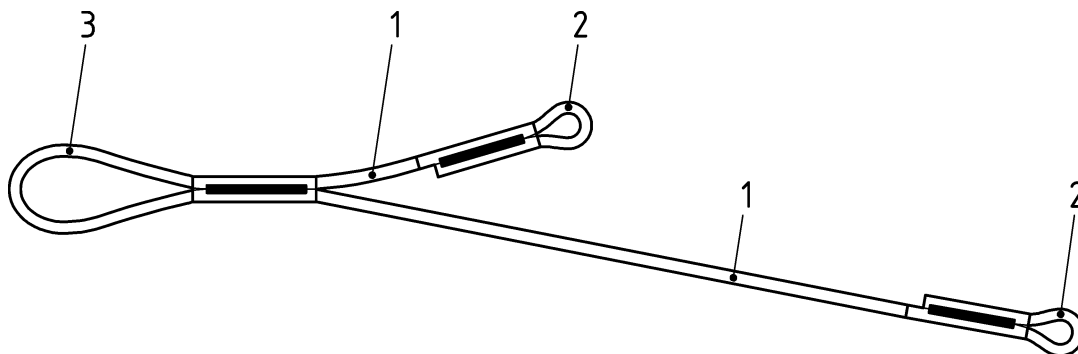
belay lanyard whose length is intended to be adjusted using the manufacturer's instructions and information

### 3.3

#### **multi-arms personal belay lanyard**

personal belay lanyard with a maximum of two arms fitted with connecting points, one or both arms may be adjustable

Note 1 to entry: See Figure 1 for an example.



### Key

- 1 Arm
- 2 Connecting points
- 3 Connecting point to be connected to the harness

**Figure 1 — Example of multi-arms personal belay lanyard**

## 4 Safety requirements

### 4.1 Design and ergonomics

**4.1.1** When checked in accordance with 5.1, the personal belay lanyard shall not have sharp edges or burrs that may cause injury to the user or that may cut, abrade or otherwise cause damage to the personal belay lanyard itself.

**4.1.2** When checked in accordance with 5.1, the adjustable personal belay lanyard shall be fitted with an end stop which shall prevent unintentional detachment of the length adjustment device from the personal belay lanyard.

**4.1.3** The personal belay lanyard shall be connected to the harness as specified in the manufacturer's instructions and information.

**4.1.4** When the personal belay lanyard is provided with a connector intended to be attached to the belay stance, this connector shall be fitted with a gate-locking device and conform to EN 12275. It shall be Class T or provided with a component that ensures that the connector is loaded only along its major axis.

**4.1.5** When checked in accordance with 5.1 where stitching providing safety and strength may be subject to abrasion, it shall contrast in colour with the personal belay lanyard material.

### 4.2 Dynamic test

When tested in accordance with 5.2, the personal belay lanyard shall not release the mass. The peak force of the first fall shall be less than 10 kN.

If the personal belay lanyard has a fall indicator as claimed by the manufacturer, check after the last fall that the fall indicator is activated.

**NOTE** The risk of a fall on two arms, which would increase the impact force, has been taken into account by the limitation of the impact force to 10 kN on one single arm.



### 4.3 Slippage test

For adjustable personal belay lanyard the slippage shall not be more than 50 mm, when tested in accordance with 5.3.

## 5 Test methods

### 5.1 General

Verify by reference to appropriate documentation and by visual and/or tactile examination of the personal belay lanyard.

### 5.2 Dynamic test

#### 5.2.1 Test samples

For personal belay lanyards designed in different lengths, test the longest and the shortest.

The three consecutive fall tests shall be carried out with the same sample.

For multi-arms personal belay lanyard, if arms are not identically designed, each arm shall be tested individually.

When testing an adjustable personal belay lanyard, position the adjustment device so that the personal belay lanyard is tested at 80 % of its maximum length at the second fall.

#### 5.2.2 Conditioning and tests conditions

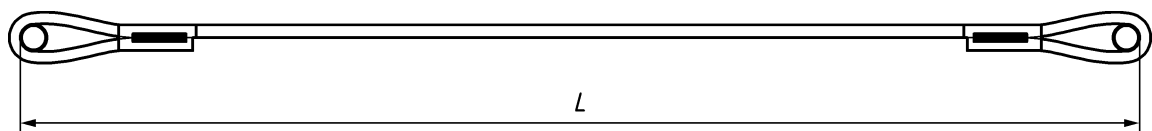
Dry the test samples for at least 24 h in an atmosphere of  $(50 \pm 5)^\circ\text{C}$  and less than 20 % relative humidity.

Then condition these test samples in an atmosphere of  $(23 \pm 2)^\circ\text{C}$  and  $(50 \pm 2)\%$  relative humidity for at least 72 h.

Then start testing these samples at a room temperature of  $(23 \pm 5)^\circ\text{C}$  within 5 min.

#### 5.2.3 Measurement of the maximum length

Attach both terminations of the sample as described in the manufacturer's instructions and information to rigid bars of  $\varnothing (10 \pm 0,2)$  mm. If the personal belay lanyard is adjustable, extend it to its maximum length. Apply a load of  $(10 \pm 0,1)$  daN, without shock by the means of a rigid bar of  $\varnothing (10 \pm 0,2)$  mm to the opposite termination. Maintain the load for  $(60 \pm 5)$  s. Within 15 s, with the load still applied, measure the distance  $L$ , see Figure 2, of the personal belay lanyard between the load bars in contact with the termination lanyard, in metres to the nearest 0,01 m.



#### Key

$L$  Length under load

Figure 2 — Example of a maximum length  $L$  under load

#### 5.2.4 Apparatus

Use a guided mass drop test rig as specified in EN 892 with a mass of  $(80 \pm 0,1)$  kg.

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### 5.2.5 Dynamic strength test

#### 5.2.5.1 Personal belay lanyard

Attach the end termination intended for connection to the harness to the falling mass as described in the manufacturer's instructions and information (e.g. lark's foot) and the opposite end termination to the anchor point.

Load the test sample with the falling mass as a static load for a period of  $(60 \pm 5)$  s.

Within  $(120 \pm 15)$  s raise the mass to a height of  $2 \times L$ . Release the mass.

Record the peak force for the first drop only.

Repeat the test two more times, with  $(5 \pm 0,25)$  min between each drop, for a total of 3 drops, each time raising the mass to the same initial position.

#### 5.2.5.2 Adjustable personal belay lanyard

Attach the end termination intended for connection to the harness to the falling mass as described in the manufacturer's instructions and information (e.g. lark's foot) and the opposite end termination to the anchor point. Adjust it to the length  $L$  as measured in 5.2.3.

Load the test sample with the falling mass as a static load for a period of  $(60 \pm 5)$  s.

- 1) 1st drop: Within  $(120 \pm 15)$  s, raise the mass to a height of  $2 \times L$ . Release the mass. Record the peak force.
- 2) 2nd drop: Within  $(5 \pm 0,25)$  min, adjust to  $(80 \pm 2)$  % of its length  $L$  as measured 5.2.3 and raise the mass to a height of  $1,6 \times L$ . Release the mass.
- 3) 3rd drop: Within  $(5 \pm 0,25)$  min, raise the mass to a height of  $2 \times L$  with adjustable belay lanyard fully extended. Release the mass.

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### 5.3 Slippage test for adjustable personal belay lanyard

#### 5.3.1 Conditioning and test conditions

Put a test sample in tap water at room temperature of  $(23 \pm 5)$  °C for one hour. Then start testing these samples at a temperature of  $(23 \pm 5)$  °C within 10 min.

Adjust the adjustable personal belay lanyard to its shorter length. Attach the test sample as described in the instruction for use (e.g. lark's foot) between two bars of  $\emptyset (10 \pm 0,2)$  mm to the lanyard.

Determine the loading speed,  $v$ , as a function of the free length of the test sample, using Formula (1) with an accuracy of  $\pm 20$  %:

$$v = 0,5 L \quad (1)$$

Where:

$v$  is the loading speed, in millimetre per minute;

$L$  is the length in millimetre as defined in 5.2.3.

#### 5.3.2 Determination of slippage

Apply a force of  $(100 \pm 10)$  N and mark the personal belay lanyard as close as possible to the length adjustment device. Increase the force until  $(1,3 + 0,1/-0)$  kN and measure the slippage before unloading.