



SLOVENSKI STANDARD
SIST EN 17109:2020+A1:2024

01-december-2024

**Gorniška oprema - Individualni varnostni sistemi za vrvne plezalne parke -
Varnostne zahteve in preskusne metode**

Mountaineering equipment - Individual safety systems for rope courses - Safety requirements and test methods

Bergsteigerausrüstung - Einzelsicherungssysteme für Seilgärten - Sicherheitsanforderungen und Prüfverfahren

Équipement d'alpinisme et d'escalade - Systèmes d'assurage individuels pour parcours acrobatiques en hauteur - Exigences de sécurité et méthodes d'essai

Ta slovenski standard je istoveten z: EN 17109:2020+A1:2024

[SIST EN 17109:2020+A1:2024](http://standards.sist.si/catalog/standard/sist/17109:2020+A1:2024)

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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

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NORME EUROPÉENNE

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Mountaineering equipment - Individual safety systems for rope courses - Safety requirements and test methods

Équipement d'alpinisme et d'escalade - Systèmes d'assurance individuels pour parcours acrobatiques en hauteur - Exigences de sécurité et méthodes d'essai

Bergsteigerausrüstung - Einzelsicherungssysteme für Seilgärten - Sicherheitsanforderungen und Prüfverfahren

This European Standard was approved by CEN on 15 December 2019 and includes Amendment 1 approved by CEN on 12 August 2024.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 17109:2020+A1:2024) 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of an identical text or by endorsement, at the latest by April 2025, and conflicting national standards shall be withdrawn at the latest by April 2025.

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 includes Amendment 1 approved by CEN on 12 August 2024.

This document supersedes EN 17109:2020.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

This document has been prepared under a standardisation request addressed to CEN and CENELEC by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, 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 organisations 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 17109:2020+A1:2024 (E)**1 Scope**

This document specifies safety requirements and test methods for components of an individual safety system for protection against a fall from height used in permanent and mobile rope courses as defined in [EN 15567-1:2015+A1:2020](#).

The products considered in this document are not intended to limit, by themselves, the deceleration of the fall of the user, as defined in [EN 15567-1:2015+A1:2020](#). For this requirement, it is essential to consider the whole ropes course system.

Safety lines and harnesses are not covered in this document.

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 362:2004](#), *Personal protective equipment against falls from a height — Connectors*

[EN 565:2017](#), *Mountaineering equipment — Tape — Safety requirements and test methods*

[EN 12275:2013](#), *Mountaineering equipment — Connectors — Safety requirements and test methods*

[EN 15567-1:2015+A1:2020](#), *Sports and recreational facilities — Ropes courses — Part 1: Construction and safety requirements*

[ISO 9227:2017](#), *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227:2017)*

[ISO 7000:2004](#), *Graphical symbols for use on equipment — Registered*

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:

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

3.1**ropes course**

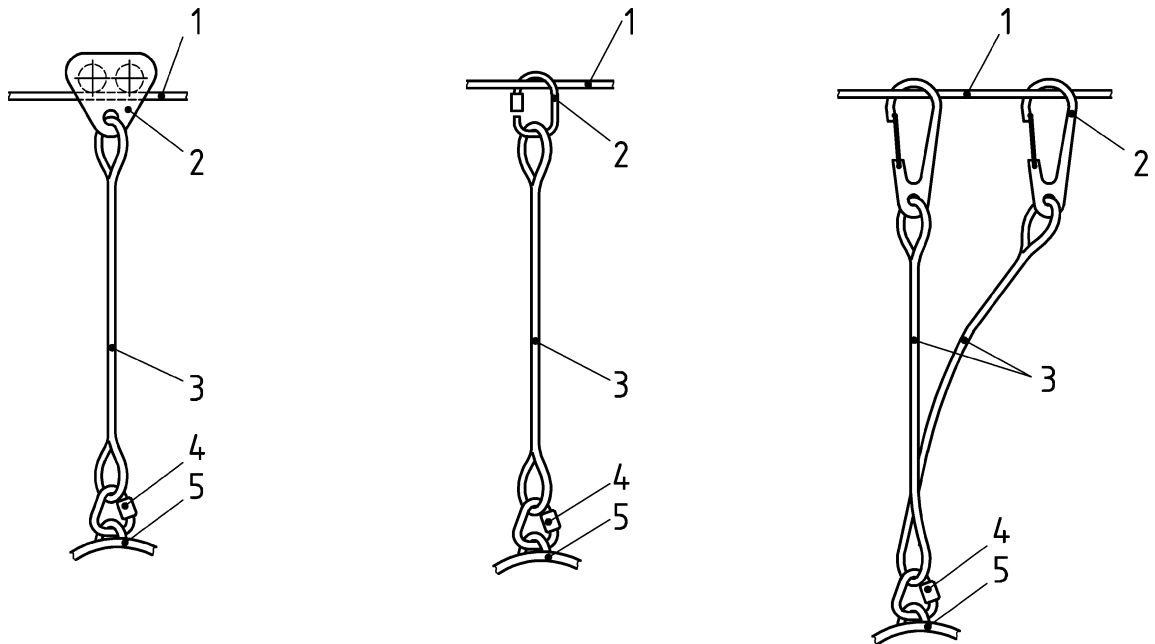
constructed facility with restricted access and requiring supervision consisting of one or more activity systems, support systems and, if needed, an appropriate safety system

[SOURCE: [EN 15567-1:2015+A1:2020](#), 3.1 modified: Note 1 deleted]

3.2**individual safety system****ISS**

component(s) connecting the harness to the safety line for protection against fall from height consisting of mobile connecting device(s), lanyard(s) and a connecting system to the harness which may be supplied as a pre-assembled product, or supplied by one or more manufacturer(s) and may be assembled by a user to make an ISS

EXAMPLE See Figure 1



Key

- 1 safety line
- 2 mobile connecting device
- 3 lanyard
- 4 connecting system to the harness
- 5 harness

Figure 1 — Example of ISS

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3.3

safety line

flexible or rigid, horizontal, vertical or sloping, continuous or discontinuous device used as a protection against falling from a height

Note 1 to entry: In this standard, any part of a rope course where the mobile connecting device (MCD) is intended to be connected is considered as safety line (e.g. safety line, anchor point, fall arrester, integrated trolley/rail systems).

[SOURCE: [A1](#) EN 15567-1:2015+A1:2020 [A1](#), 3.13, modified: Note 1 included]

3.4

mobile connecting device

MCD

part of the ISS which is used to connect it to the safety line and allows the user to move along the safety line

EXAMPLE Shuttles, pulleys, connectors.

3.5

lanyard

part of the ISS connecting the MCD to the connecting system to the harness

EN 17109:2020+A1:2024 (E)**3.6****category A MCD**

self-closing device which is not automatically self-locking

EXAMPLE Self-closing or screw gate connector.

3.7**category B MCD**

self-locking device

EXAMPLE Self-locking connector.

3.8**category C MCD**

interlocking device designed to reduce the likelihood of unintentional detaching from the safety system

3.9**category D MCD**

interlocking device designed to prevent unintentional detaching from the safety system

3.10**category E MCD**

device that is permanently attached during operation and can only be opened with a tool

3.11**connecting system to the harness**

device which connects the lanyard to the harness

3.12**safety line supports**

supports on which the MCD can transit

Note 1 to entry: These supports could be (non-exhaustive list): fittings junction between ropes, switch brackets, terminal brackets, mobile anchor points

4 Safety requirements**4.1 Design and construction**

A1 Connectors which are used as MCD and are certified according to EN 12275:2013 or EN 362:2004 can be used in ISS without complying to this document.

NOTE More information about the use of connectors certified according to EN 12275:2013 or EN 362:2004 are given in Clause 7 n). **A1**

A1 *deleted text* **A1**

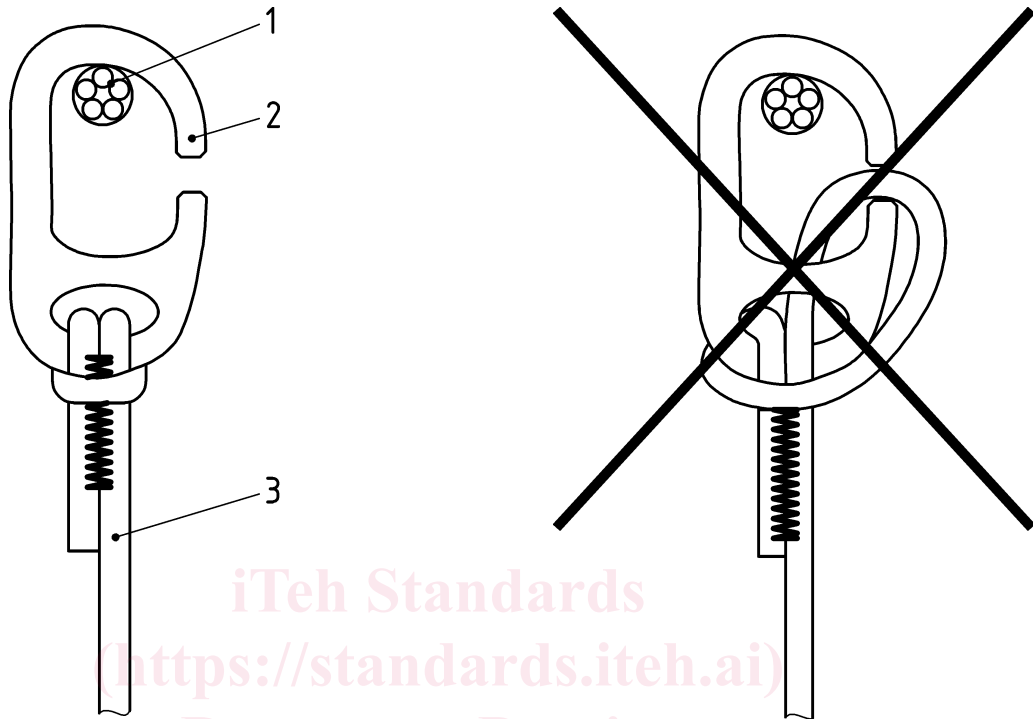
A1 For all ISS, all the connections within reach of the user, between **A1**

- the MCD and the lanyard,
- the lanyard and the connecting system to the harness,
- the connecting system to the harness and the harness

A1 shall not be openable or, if openable, only by a tool. **A1**

A lark's foot connection is considered as non-openable. When connections between the lanyard and the MCD are made by a lark's foot, the loop of the lark's foot connection on the MCD shall be **A1** designed **A1** in order to avoid disassembly of the lanyard when the MCD is connected to the safety line (see Figure 2).

A1



a) Correct design with no risk of disconnection MCD/lanyard

b) Incorrect design with risk of disconnection MCD/lanyard

Key

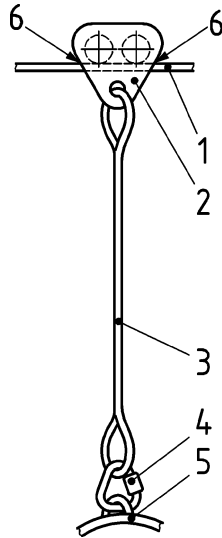
- 1 safety line
- 2 MCD
- 3 lanyard

Figure 2 — Examples of lark's foot designs **A1**

Parts of the ISS, which can come in contact with the user's body, shall be free from burrs and sharp edges.

Rotating parts of MCD with pulleys shall be unreachable by the fingers. Any hole through which the pulley wheel(s) can be reached during use shall not allow a pin of 8 mm diameter ($\pm 0,1$ mm) to go through. This requirement is not applicable to the space between pulley wheel(s) and safety line (see Figure 3, key 6).

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**Key**

- 1 safety line
- 2 MCD
- 3 lanyard
- 4 connecting system to the harness
- 5 harness
- 6 space between pulley wheel(s) and safety line

Figure 3 — Spaces between pulley wheel(s) and safety line

If any pulley wheel(s) axle is secured by nuts or screws, the nuts and/or screws shall be locked and secured by means other than friction.

Where stitching is used to provide safety and strength (e.g. in joints) it shall be possible to inspect it and the stitching shall contrast with the textile element in colour or surface appearance. The MCD shall be designed to ensure that the loading is in pre-determined direction(s).

Only for category E, the connection between the lanyard and the MCD shall not be able to be placed into the opening of the MCD without a tool.

The functioning of the MCD system shall be in accordance with the $\boxed{A_1}$ manufacturer's instructions and information $\boxed{A_1}$ (see Clause 7) and the category or categories as described in 3.6 to 3.10.

4.2 Manual extraction test for categories C, D and E

Only for MCD which are used on cable safety lines when tested in accordance with 5.2, the MCD shall not be able to be removed from the cable.

4.3 Static strength

4.3.1 Function under a test load (only for MCD with pulleys)

For MCD with pulleys, when tested in accordance with 5.3.2, the pulley wheel(s) of the MCD shall be able to rotate 10 times in both directions (see Figure 6).

If the MCD is one-directional, then the requirement is only for the intended direction.

4.3.2 Deformation test for MCD

This test applies to MCD of category E and to other categories, where relevant.