



SLOVENSKI STANDARD SIST EN 893:2019

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Gorniška oprema - Dereze - Varnostne zahteve in preskusne metode

Mountaineering equipment - Crampons - Safety requirements and test methods

Bergsteigerausrüstung - Steigeisen- Sicherheitstechnische Anforderungen und Prüfverfahren

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Equipement d'alpinisme et d'escalade (Crampons) Exigences de sécurité et méthodes d'essai

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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

EN 893

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2019

ICS 97.220.40

Supersedes EN 893:2010

English Version

Mountaineering equipment - Crampons - Safety requirements and test methods

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

Bergsteigerausrüstung - Steigeisen -
Sicherheitstechnische Anforderungen und
Prüfverfahren

This European Standard was approved by CEN on 2 May 2019.

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

CEN members are the national standards bodies of 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, Turkey and United Kingdom.



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 893:2019) 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 February 2020, and conflicting national standards shall be withdrawn at the latest by February 2020.

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 supersedes EN 893:2010.

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 Regulation (EU) 2016/425.

For relationship with Regulation (EU) 2016/425, see informative Annex ZA, which is an integral part of this document.

The main changes compared to the previous edition are as follows:

- Definition 3.8 for 'attachment rings or eyes' updated;
- update of Table 1, Strength of spikes;
- update of 5.1, Test samples; [SIST EN 893:2019](https://standards.iteh.ai/catalog/standards/sist/8f558c63-c0c7-45f5-9b54-475b7b25b37a/sist-en-893-2019)
- concretization of former Subclause 5.3, Apparatus, in title 'Test apparatus for bending strength on spikes' and content;
- update of 5.4.3, Bending strength test on spikes;
- update of 5.4.4, Transverse strength test on bails;
- update of Clause 6, Marking;
- update of Clause 7, Information supplied by the manufacturer;
- update of Annex A, Standards on mountaineering equipment;
- new Annex ZA;
- editorial updates.

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, Turkey and the United Kingdom.

EN 893:2019 (E)

Introduction

The text of this document is based on the former UIAA-Standard S (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 specifies safety requirements and test methods for crampons intended to prevent the user from slipping when used in mountaineering on snow and ice including climbing mixed terrain.

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 565:2017, *Mountaineering equipment – Tape – Safety requirements and test methods*

EN ISO 6508-1:2016, *Metallic materials – Rockwell hardness test – Part 1: Test method (ISO 6508-1:2016)*

ISO 7000, *Graphical symbols for use on equipment – Registered symbols*

ISO 9523:2015, *Touring ski-boots for adults – Interface with touring ski-bindings – 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:

- IEC Electropedia: available at <http://www.electropedia.org/>
<https://standards.iteh.ai/catalog/standards/sist/8f558c63-c0c7-45f5-9b54-47517b5b37e1/sist-en-893-2019>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

Note 1 to entry: See also Figure 1.

3.1

crampon

device fitted with spikes, which is intended to cover the sole of a boot from toe to heel and from one side to the other, so as to provide grip on snow, ice and mixed terrain and which has a system of attachment to the boot

3.2

frame

part or parts of the crampon which bears the spikes

3.3

front spike

forward pointing spike intended for use when climbing steep terrain

3.4

downward spike

spike usually, but not necessarily, pointing vertically downward

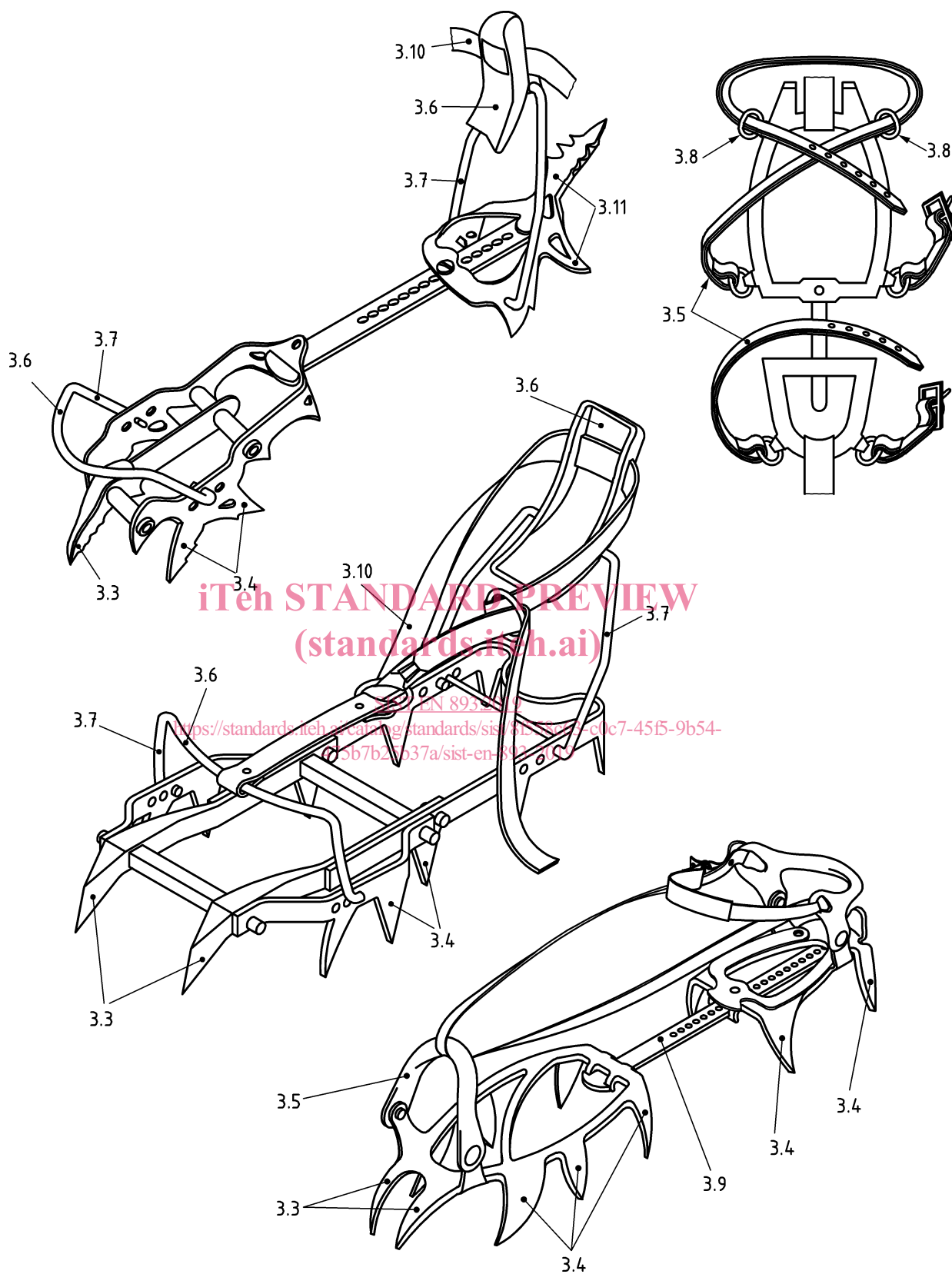
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- 3.5
binding**
system of attachment to the boot
- 3.6
clip-on binding**
particular binding which uses a lever mechanism for rapid attachment of a crampon to a boot
- 3.7
bail**
stirrup-shaped part or parts of a binding used to connect the crampon to the toe and/or to the heel of the boot
- 3.8
attachment rings or eyes**
rings or eyes which are threaded by a part of the binding when fitted in accordance with the manufacturer's instructions and information
- 3.9
adjustment system**
system for adjusting the crampon to fit the boot
- 3.10
retaining system**
system which prevents the climber from losing the crampon if the binding fails
- 3.11
spur**
another spike than front spikes and downward spikes

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NOTE The numbers in this figure refer to the corresponding terms defined in Clause 3.

Figure 1 — Parts of a crampon

4 Safety requirements

4.1 Shape and design

4.1.1 When tested in accordance with 5.4.1.1, each crampon shall have a system of attachment to the boot.

4.1.2 When tested in accordance with 5.4.1.1 each crampon shall have at least eight spikes, not including spurs.

4.1.3 When tested in accordance with 5.4.1.1, each crampon shall have at least six downward spikes, which:

- a) when tested in accordance with 5.4.1.1, the spikes shall be at least 20 mm long (see Figure 2) but not have necessarily all the same length;
- b) when tested in accordance with 5.4.1.2, the spikes, when walking normally on flat and smooth ice, shall contact the surface of the ice, but not necessarily at the same time; and
- c) when tested in accordance with 5.4.2.2, the spikes shall be shaped such that when loaded with one person's weight whilst walking on smooth ice, the downward spikes “bite” into the ice such as to prevent slipping.

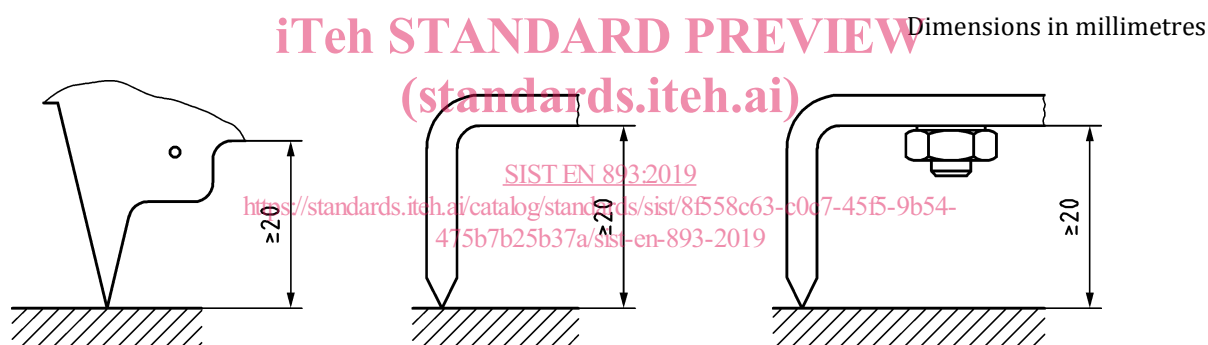


Figure 2 — Minimum length of spikes

4.1.4 When tested in accordance with 5.4.1.1, all edges with which the user's hands can come into contact shall be free from burrs.

4.1.5 If the crampon has a clip-on binding, when tested in accordance with 5.4.1.1, it shall be fitted with a retaining system.

4.2 Prevention against slippage

When tested in accordance with 5.4.2, the crampons shall not slip on the ice more than 10 mm in each direction.

4.3 Strength

4.3.1 Hardness

Each part of the crampon which contains a spike or spikes shall have a Rockwell hardness of at least 70 HRB.

Testing in accordance with 5.4.1.3.

4.3.2 Bending and breaking strength of spikes

When tested in accordance with 5.4.3, the maximum deformation under load and the permanent deformation after removing the load, measured at the point of application, shall not be more than shown in Table 1. The breaking strength shall be at least as shown in Table 1.

Spurs shall be tested with a load applied in each direction of intended use.

Table 1 — Strength of spikes

Types of spikes	Applied force per spike N	Maximum deformation under load mm	Maximum permanent deformation mm	Minimum breaking strength per spike N
Downward spike	900 ± 20	15	7	1 200
Front spike (if more than one) and spur	1 200 ± 30	15	7	1 500
Single front spike (mono-spike)	1 600 ± 40	15	7	2 000

4.3.3 Transverse strength of bails of clip-on bindings

When tested in the operating position and in accordance with 5.4.4, the bails of clip-on bindings shall not break and shall not come out of the frame of the crampon. Permanent deformation is acceptable.

If the crampon is directly attached or integrated into a boot, the transverse strength requirements are not applicable.

4.3.4 Strength of binding parts other than bails

When tested in accordance with 5.4.5 and 5.4.6, each part shall not break.

4.3.5 Strength of attachment rings and eyes and of the appropriate part of the binding

When tested in accordance with 5.4.7, attachment rings and eyes and the appropriate part of the binding shall not break.

If the crampon is directly attached or integrated into a boot, the strength requirements are not applicable.

4.3.6 Longitudinal strength of the frame

When tested in accordance with 5.4.8, the frame including the longitudinal adjustment system shall not break.