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Gorniška oprema - Ledni vijaki - Varnostne zahteve in preskusne metode

Mountaineering equipment - Ice anchors - Safety requirements and test methods

Bergsteigerausrüstung - Verankerungsmittel im Eis - Sicherheitstechnische Anforderungen und Prüfverfahren

Equipement d'alpinisme et d'escalade - Broches à glace - 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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English Version

Mountaineering equipment - Ice anchors - Safety requirements and test methods

Équipement d'alpinisme et d'escalade - Broches à glace - Exigences de sécurité et méthodes d'essai

Bergsteigerausrüstung - Verankerungsmittel im Eis - Sicherheitstechnische Anforderungen und Prüfverfahren

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 568:2015) 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of an identical text or by endorsement, at the latest by May 2016, and conflicting national standards shall be withdrawn at the latest by May 2016.

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

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 EU Directive(s).

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

This document supersedes EN 568:2007.

In comparison with the previous edition, the following major changes were made:

a) now included: the option of using cellular concrete in holding strength test instead of ice type 2;

b) clarification of figures.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The text of this European Standard is based on the former UIAA-Standard Q "ice anchors" (Union Internationale des Associations d'Alpinisme), which has been developed with international participation.

This European Standard is one of a package of standards for mountaineering equipment (see Annex A).

1 Scope

This European Standard specifies safety requirements and test methods for ice anchors, i.e. ice screws and ice pitons for use in mountaineering including climbing.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 566, *Mountaineering equipment — Slings — Safety requirements and test methods*

3 Terms and definitions

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

3.1
ice anchor
general term for ice screws and ice pitons

3.2
ice screw
anchor which is screwed into the ice and is screwed out again after use

3.3
ice piton
anchor which is hammered into the ice and is removed again after use

3.4
placement length
l
length of the anchor from its end to the part of the eye/connector hole intended to be in contact with the ice after it has been screwed or hammered in

Note 1 to entry: See Figure 1.

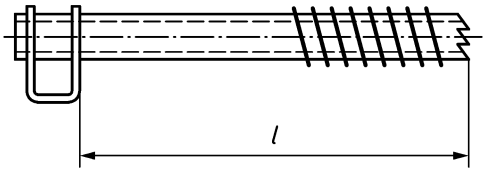

Figure 1 — Placement length, *l*

4 Safety requirements

4.1 Design

4.1.1 Ice screws shall consist of a cylindrical or semi-cylindrical hollow body with thread. At the screw head, there is an eye into which a connector can be clipped.

Ice pitons shall consist of a cylindrical or semi-cylindrical hollow body and have an eye into which a connector can be clipped.

4.1.2 The head and the eye shall be free from burr and sharp edges.

The internal edges of the eye shall be rounded with a radius larger than 0,2 mm or have a chamfer larger than 0,2 mm × 45°. See a) in Figure 2.

Dimensions in millimetres

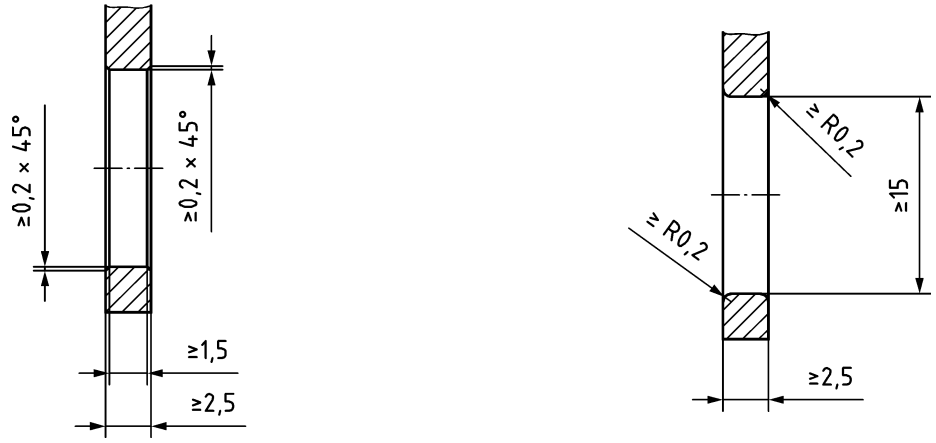

Figure 2 — Attachment point eye dimensions

4.1.3 When tested according to 5.1, the eye shall have an internal diameter of at least 15 mm. See b) in Figure 2.

4.2 Resistance to hammering of ice pitons

When tested in accordance with 5.2.4.1, ice pitons shall not show any deformation likely to affect safety, e.g. cracks or separation of components. The impact area of the head shall remain sufficiently intact so as to allow further hammering.

NOTE Deformation due to hammering, as occurs with chisels, is not considered detrimental.

If the ice anchor has a sling for attachment, which is removable without tools, the sling shall conform to EN 566.

4.3 Screwability of the ice screws

When tested in accordance with 5.2.4.2 after a maximum of 10 full rotations of the ice screw the penetration of the following rotation shall be equal to the pitch of the thread of the ice screw.

4.4 Holding strength

4.4.1 Holding strength in the radial direction

When tested in accordance with 5.2.4.3.1, anchors shall withstand a force of at least 10 kN in the radial direction, without being pulled out of the ice or breaking.

Permanent deformation during the test is permitted.

4.4.2 Holding strength in the axial direction

When tested in the axial direction in accordance with 5.2.4.3.2, ice anchors shall withstand a force of at least 5 kN without the hanger breaking or becoming detached.

All test samples shall meet the requirement.

5 Test methods

5.1 Examination of design

Test the requirements specified in 4.1 by tactile and visual examination and measurement.

5.2 Determination of screwability of the ice screws and resistance to fracture and holding force of ice anchors

5.2.1 Test samples

Carry out the test on four ice screws or four ice pitons according to Table 1.

Table 1 — Number of test samples

Type of ice anchor	Number of samples for testing according to			
	5.2.4.1	5.2.4.2	5.2.4.3.1	5.2.4.3.2
Ice piton	1 (largest length)[b]	0	3 (shortest length)[b]	0
Ice screw	0	1[a]	3 (shortest length)[b]	1

[a] After being tested according to 5.2.4.2, the ice screw is used for the test according to 5.2.4.3.2.

[b] If anchors of different length, but otherwise same design, are available.

5.2.2 Apparatus

5.2.2.1 Ice blocks.

5.2.2.2 Steel ice container of the following dimensions:

minimum length 350 mm
minimum width 220 mm
minimum depth 330 mm
} internal dimensions

minimum wall thickness 6 mm

The base of the ice container shall be rigid so that it does not influence the test results.

5.2.2.3 A vertically guided falling body of mass (10 ± 0,02) kg with a flat impact area of 30 mm (± 10) mm diameter of hardness, HV (40) = (800 ± 10) %.

5.2.2.4 A device as shown in Figure 3 to hold a shaft at right angles to the ice surface, the lower end of the shaft having a clamping mechanism for an ice screw, which holds the screw concentrically. A lever is fitted to the top of the shaft for screwing in the ice screw.