

Mountaineering equipment — Chocks — Safety requirements and test methods

The European Standard EN 12270:1998 has the status of a
British Standard

ICS 97.220.40

National foreword

This British Standard is the English language version of EN 12270:1998.

The UK participation in its preparation was entrusted by Technical Committee SW/136, Sports, playground and other recreational equipment, to Subcommittee SW/136/5, Mountaineering equipment, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 7 and a back cover.

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English version

Mountaineering equipment — Chocks — Safety requirements and test methods

Équipement d'alpinisme et d'escalade —
Coinceurs — Exigences de sécurité et
méthodes d'essai

Bergsteigerausrüstung — Klemmkeile —
Sicherheitstechnische Anforderungen und
Prüfverfahren

This European Standard was approved by CEN on 22 July 1998.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 136, Sports, playground and other recreational 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 1999, and conflicting national standards shall be withdrawn at the latest by February 1999.

This European Standard 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(s), see informative annex ZA, which is an integral part of this standard.

The text is based on UIAA-Standard K (Union Internationale des Associations d'Alpinisme), which has been prepared with international participation.

This standard is one of a package of standards for mountaineering equipment, see annex A.

Annexes A and ZA of this European Standard are for information only.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This standard specifies safety requirements and test methods for chocks for use in mountaineering including climbing.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

EN 564, *Mountaineering equipment — Accessory cord — Safety requirements and test methods*.

EN 565, *Mountaineering equipment — Tape — Safety requirements and test methods*.

EN 892, *Mountaineering equipment — Dynamic mountaineering ropes — Safety requirements and test methods*.

EN 1891, *Personal protective equipment for the prevention of falls from a height — Low stretch kernmantel ropes*.

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

EN 20139, *Textiles — Standard atmospheres for conditioning and testing*.
(ISO 139:1973)

3 Definitions

For the purposes of this standard, the following definitions apply.

3.1

chock

non-adjustable wedge-shaped body, which is intended to be wedged in cracks in the rock and is able to withstand a load in the longitudinal axis of the means of attachment

3.2

means of attachment

system which allows the attachment of a connector (in accordance with EN 12275)

3.3

holding force

force necessary to cause the chock or its means of attachment to break or slip through the test apparatus, as determined in the strength test according to 5.4.2

4 Safety requirements

4.1 Design

4.1.1 Chocks may be fitted with a means of attachment by the manufacturer.

4.1.2 If a chock is not fitted with a means of attachment, the chock shall be designed such that a means of attachment consisting of tape (in accordance with EN 565) or accessory cord (in accordance with EN 564) or rope (in accordance with EN 892 or EN 1891) can be affixed.

4.1.3 If there is a textile means of attachment whose strength is dependent on the integrity of the stitching, then the stitching shall contrast with the background in colour or surface appearance.

4.1.4 Any means of attachment shall be large enough to accommodate a pin with a diameter of 15 mm.

4.1.5 All edges of the chock and/or the means of attachment that can come into contact with fingers or combinable components, shall be free from burrs.

4.2 Strength

When tested in accordance with 5.4.2, the holding force shall be at least 2,0 kN.

5 Test methods

5.1 Test samples

For the test, as many test samples shall be provided as there are different chock orientations indicated by the manufacturer in the instructions for use. If a chock model is manufactured in different sizes, each size shall be tested.

5.2 Test apparatus for strength test

5.2.1 Layout

The apparatus consists of two round steel supporting jaws with a radius $R = (65 \pm 2)$ mm for the chock and a loading bar with a diameter of $(10 \pm 0,1)$ mm for the means of attachment, see Figure 2.

The surface of the supporting jaws shall have a maximum surface roughness of $R_{\max} = 50,0 \mu\text{m}$.

The supporting jaws shall not rotate during the test.

When testing chocks fitted with textile slings, the surface of the steel bar shall have an arithmetical mean deviation of the profile of $R_a = 0,8 \mu\text{m}$ and a maximum surface roughness of $R_{\max} = 6,3 \mu\text{m}$. There are no surface roughness requirements when testing chocks with a means of attachment made of other than textile material.

For chocks with a horizontal non-parallel cross-section according to Figure 3, the supporting jaws shall have a groove adapted to the cross-section of the chock.

For cam-type chocks (according to Figure 4) which attain their wedging effect by swinging to one side when loaded and therefore cannot be clamped into the round steel supporting jaws, the force is transmitted by two plane-parallel steel supporting jaws, one having a step (according to Figure 5) and by a loading bar. The surface roughness of the plane-parallel supporting jaws shall be the same as that of the round steel supporting jaws.

5.2.2 Adjustment

The spacing s between the supporting jaws shall be according to the following formula:

$$s = b_{\min} + [(b_{\max} - b_{\min})/3]$$

where

- b_{\min} is the minimum chock width in the position being tested;
- b_{\max} is the maximum chock width in the position being tested, see Figure 1.

5.3 Conditioning and test conditions

For the strength test according to 5.4.2, condition the chocks with textile means of attachment as described in EN 20139.

Carry out the strength test at a temperature of $(23 \pm 5) ^\circ\text{C}$.

For chocks with textile means of attachment start the strength test within 3 min of removing them from the conditioning atmosphere.

5.4 Procedure

5.4.1 Design

5.4.1.1 Check by visual examination that the requirements according to 4.1.1 and 4.1.3 are met. Examine the manufacturer's instructions to check if the requirements of 4.1.2 are met.

5.4.1.2 Test the unloaded eye of the attachment in accordance with 4.1.4, with a pin of $(15 \pm 0,1)$ mm diameter.

5.4.1.3 Check by visual examination and handling that the requirements according to 4.1.5 are met.

5.4.2 Strength

5.4.2.1 Rate of loading:

- of 20 mm to 50 mm per minute if the chock does not contain textile elements;
- of 50 mm to 200 mm per minute if the chock contains a textile element, subjected to stress during the test.

5.4.2.2 Test a separate sample in each of the positions the manufacturer states in his instructions for use.

5.4.2.3 Apply a load to each chock until it breaks or until it is pulled out of the test apparatus.

5.4.2.4 Chocks supplied without a means of attachment shall be tested with a means of attachment affixed in accordance with the instructions for use provided by the manufacturer. If the manufacturer allows several different means of attachment, make a separate test with each one.

6 Information to be supplied

- a) the name or trademark of the manufacturer, importer or supplier;
- b) the number of this European standard: EN 12270;
- c) the model (if more than one model is available);
- d) the size (if more than one size is available);
- e) the minimum holding force in kN, to the next smaller whole number below the values ensured by the manufacturer;
- f) if chocks are supplied without means of attachment: information on the type of attachment to be used and how to affix it;
- g) the meaning of any markings on the product;
- h) on the use of the product and the level of protection which it can provide;
- i) on how to choose other components for use in the system;
- j) on how to maintain and service the product;
- k) on the lifespan of the product or how to assess it;
- l) on the effects of chemical reagents and temperature on the product;
- m) on the influence of wet and icy conditions;
- n) on the danger of sharp edges;
- o) on the influence of storage and ageing.

7 Marking

Chocks shall be marked clearly, indelibly and durably with at least the following information:

- a) name and trademark of the manufacturer, importer or supplier;
- b) the minimum holding force in kN, to the nearest whole number below the value which the manufacturer ensures, with the unit "kN", e.g. "6 kN".

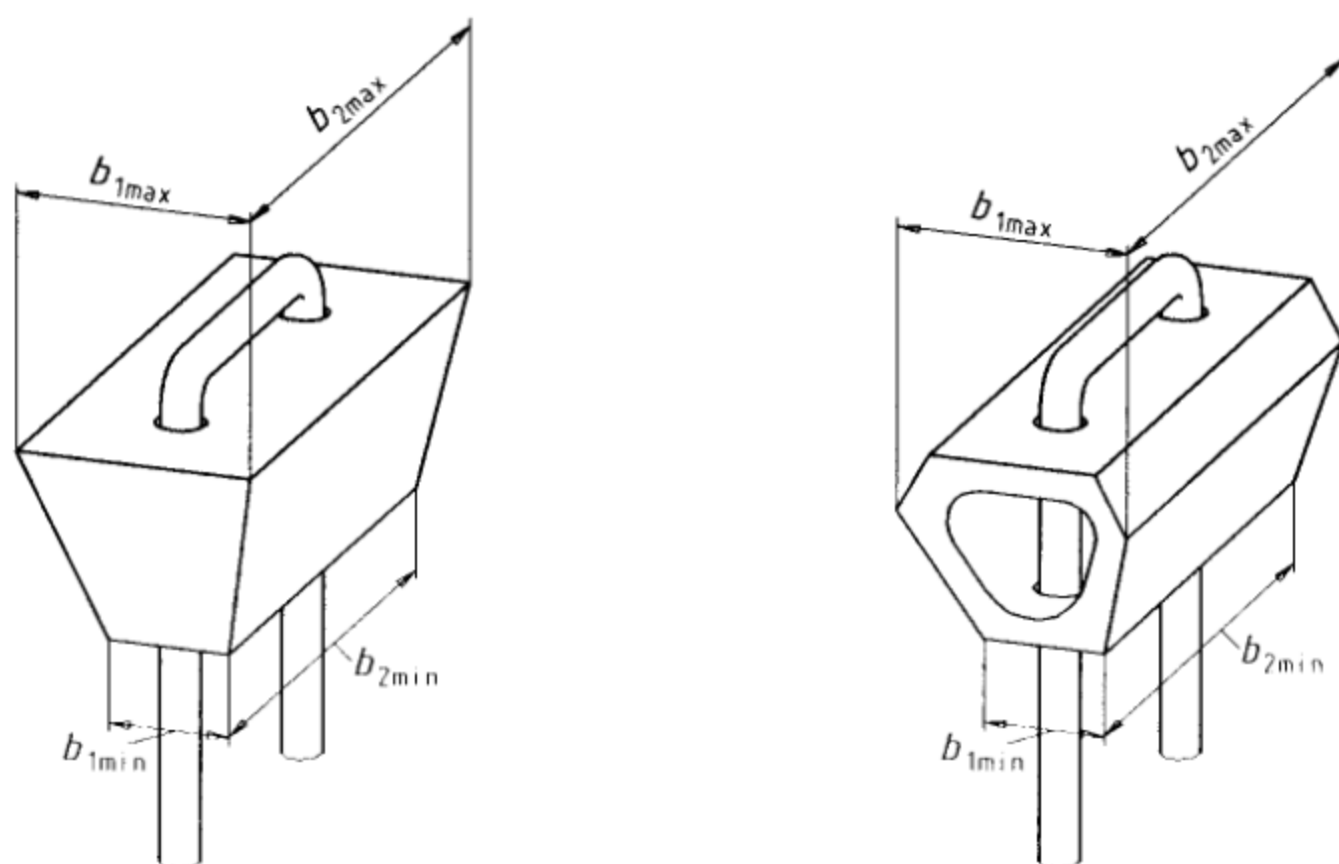
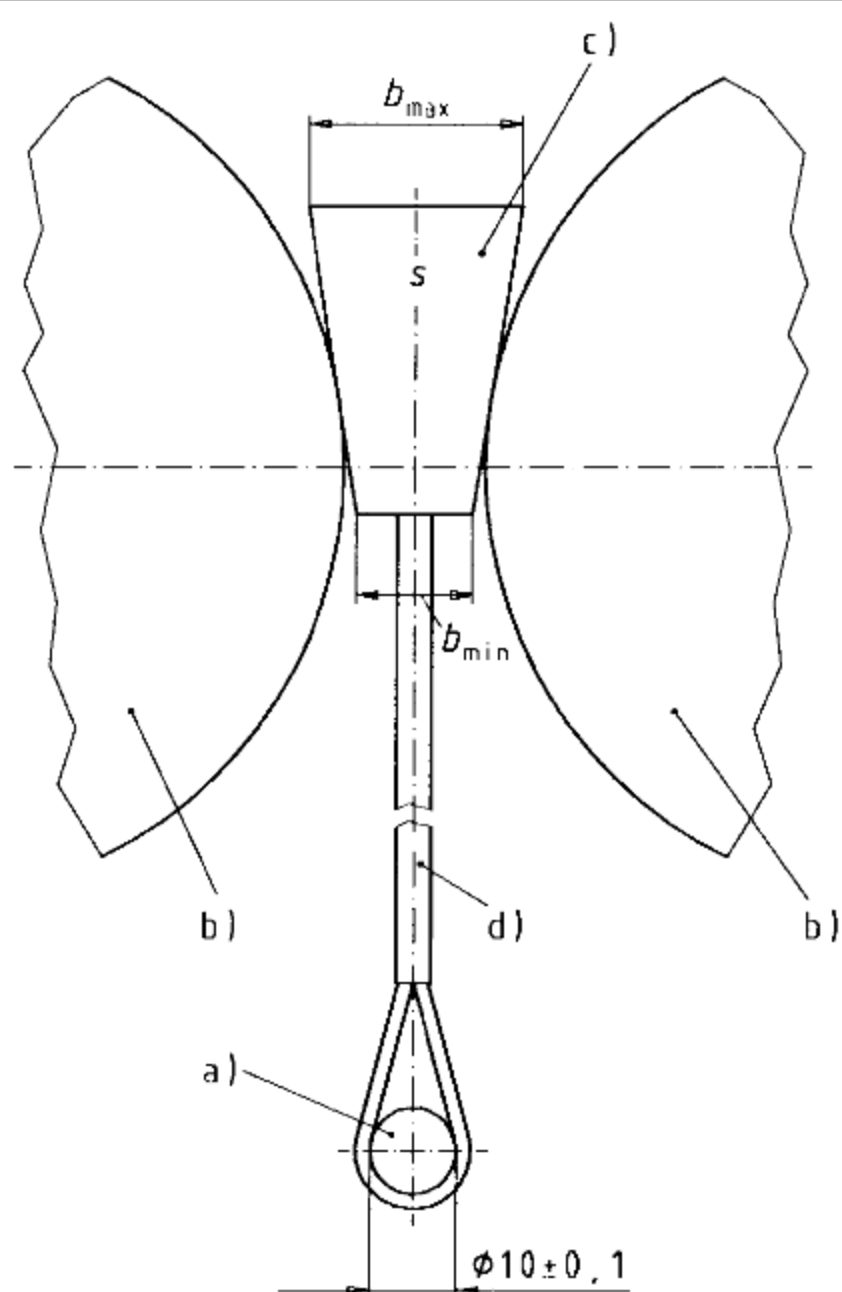


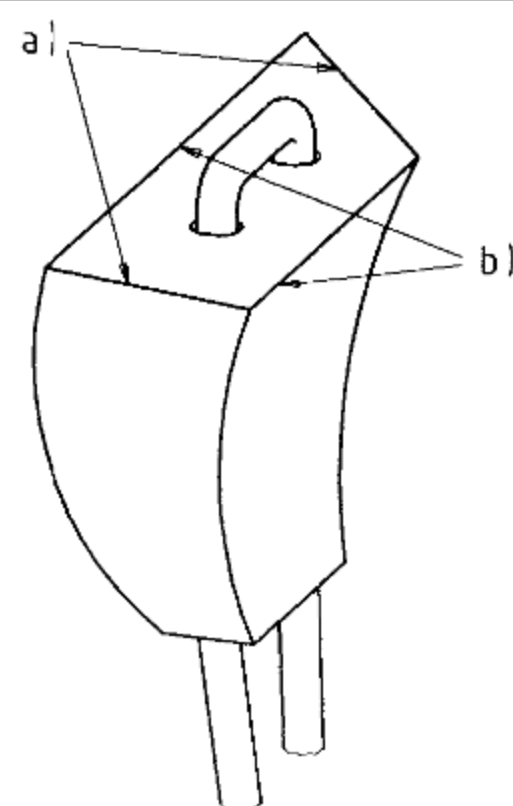
Figure 1 — Examples of chocks



Dimensions in millimetres

- a) loading bar
- b) supporting jaws $R(65 \pm 2)$ mm
- c) chock
- d) means of attachment

Figure 2 — Layout and adjustment of apparatus



- a) non-parallel
- b) parallel

Figure 3 — Example of a chock with a horizontal non-parallel cross-section

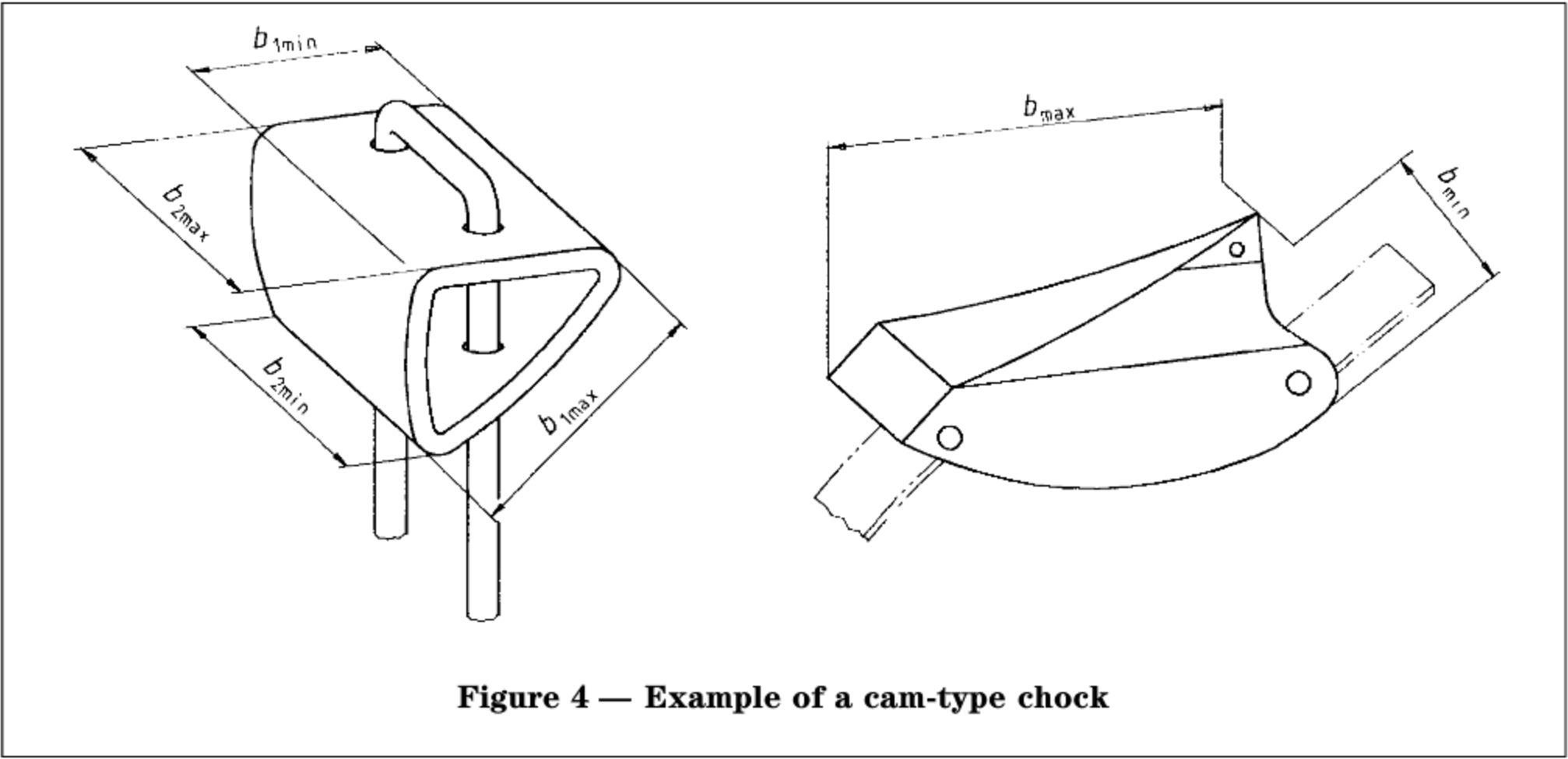


Figure 4 — Example of a cam-type chock

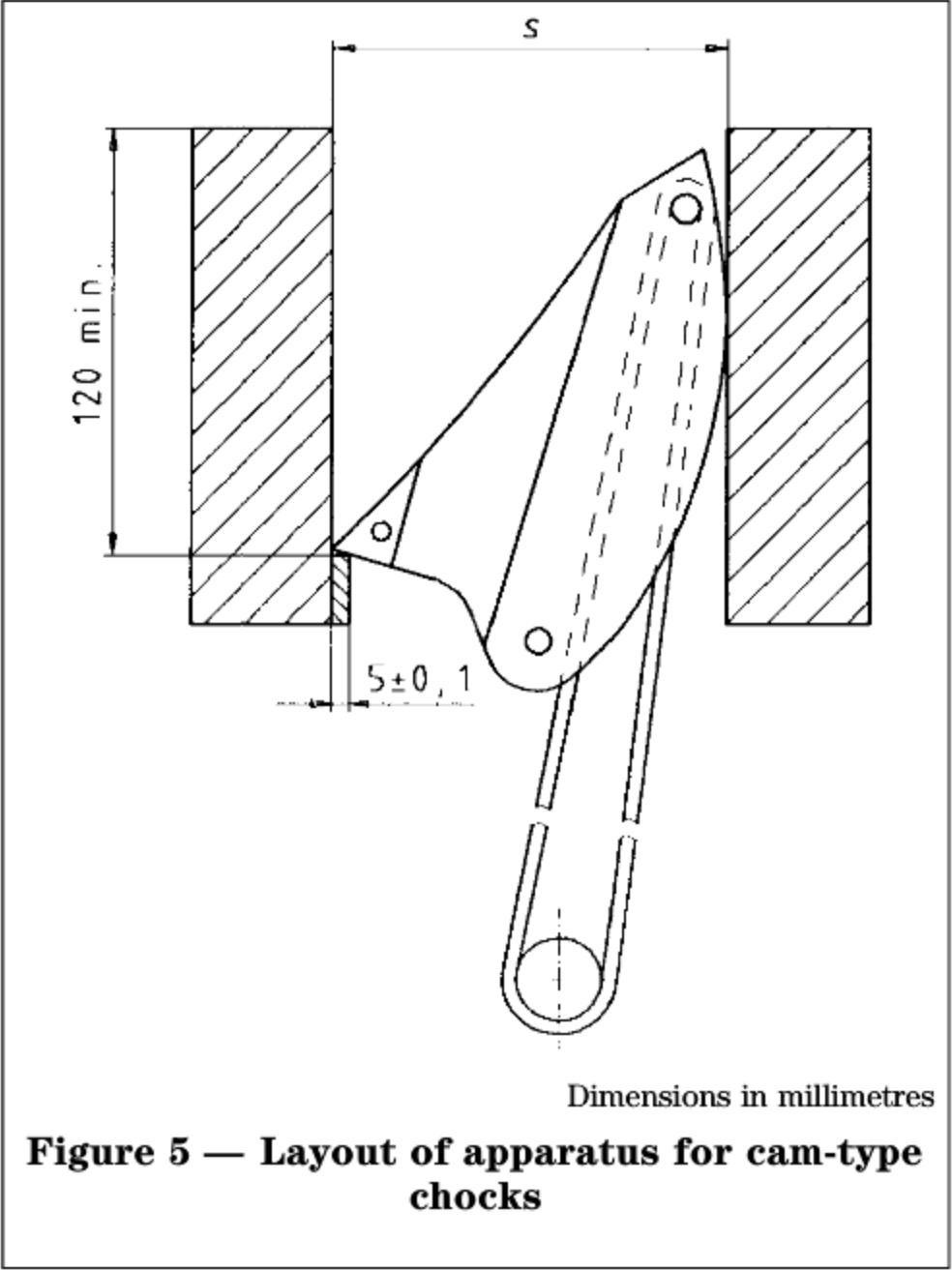


Figure 5 — Layout of apparatus for cam-type chocks

Annex A (informative)

Standards on mountaineering equipment

Table A.1 — List of standards on mountaineering equipment

No.	Document	Title
1	EN 892	<i>Mountaineering equipment — Dynamic mountaineering ropes — Safety requirements and test methods</i>
2	EN 12275	<i>Mountaineering equipment — Connectors — Safety requirements and test methods</i>
3	prEN 13089	<i>Mountaineering equipment — Ice-tools — Safety requirements and test methods</i>
4	prEN 12277	<i>Mountaineering equipment — Harnesses — Safety requirements and test methods</i>
5	prEN 12492	<i>Mountaineering equipment — Helmets — Safety requirements and test methods</i>
6	EN 564	<i>Mountaineering equipment — Accessory cord — Safety requirements and test methods</i>
7	EN 565	<i>Mountaineering equipment — Tape — Safety requirements and test methods</i>
8	EN 566	<i>Mountaineering equipment — Slings — Safety requirements and test methods</i>
9	prEN 12276	<i>Mountaineering equipment — Frictional anchors — Safety requirements and test methods</i>
10	prEN 12270	<i>Mountaineering equipment — Chocks — Safety requirements and test methods</i>
11	EN 567	<i>Mountaineering equipment — Rope clamps — Safety requirements and test methods</i>
12	EN 958	<i>Mountaineering equipment — Energy absorbing systems for use in klettersteig (via ferrata) climbing — Safety requirements and test methods</i>
13	EN 959	<i>Mountaineering equipment — Rock anchors — Safety requirements and test methods</i>
14	EN 568	<i>Mountaineering equipment — Ice anchors — Safety requirements and test methods</i>
15	EN 569	<i>Mountaineering equipment — Pitons — Safety requirements and test methods</i>
16	prEN 893	<i>Mountaineering equipment — Crampons — Safety requirements and test methods</i>
17	¹⁾	<i>Mountaineering equipment — Descenders — Safety requirements and test methods (00136079)</i>
18	prEN 12278	<i>Mountaineering equipment — Pulleys — Safety requirements and test methods</i>
¹⁾ In preparation.		

Annex ZA (informative)

Clauses of this European Standard addressing essential requirements or other provisions of EU Directives

This European Standard 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 89/686/EEC.

WARNING: Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

The following clauses of this standard are likely to support requirements of Directive 89/686/EEC:

EU Directive 89/686/EEC, Annex II		Clause/subclause of this standard
1.1	Design principles	4.1, 5
1.2	Innocuousness	4.1.5, 5.4.1.3
1.3.2	Lightness and strength	4.2, 5.4.2
1.4	Information supplied by the manufacturer	6, 7
2.4	PPE subject to ageing	6j)

Compliance with the clauses of this standard provides one means of conforming with the specific essential requirements of the Directive concerned and associated EFTA regulations.

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