SLOVENSKI STANDARD
oSIST prEN 12492:2024

01-julij-2024

Alpinistična oprema - Alpinistične čelade - Varnostne zahteve in preskusne metode

Mountaineering equipment - Helmets for mountaineers - Safety requirements and test methods

Bergsteigerausrüstung - Bergsteigerhelme - Sicherheitstechnische Anforderungen und Prüfverfahren

Équipements d'alpinisme et d'escalade - Casques d'alpinistes - Exigences de sécurité et méthodes d'essai

Ta slovenski standard je istoveten z: **prEN 12492**

ICS:

13.340.20	Varovalna oprema za glavo	Head protective equipment
97.220.40	Oprema za športe na prostem in vodne športe	Outdoor and water sports equipment

oSIST prEN 12492:2024 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 12492

May 2024

ICS 13.340.20

Will supersede EN 12492:2012

English Version

Mountaineering equipment - Helmets for mountaineers - Safety requirements and test methods

Equipements d'alpinisme et d'escalade - Casques d'alpinistes - Exigences de sécurité et méthodes d'essai

Bergsteigerausrüstung - Bergsteigerhelme - Sicherheitstechnische 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 158.

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.

This draft European Standard was established by CEN 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, Türkiye and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. prEN 12492:2024 E

Contents

Page

European foreword

This document (prEN 12492:2024) has been prepared by Technical Committee CEN/TC 158 “Head protection”, the secretariat of which is held by SIS.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12492:2012.

EN 12492:2024 includes the following significant technical changes with respect to EN 12492:2012:

— the scope is extended to activities with similar hazards as in mountaineering including, but not limited to, climbing, caving, canyoning, rope courses, and via ferrata climbing;

— the helmet positioning index (HPI) (3.9) has been added in the terms and definitions and test methods;

— ergonomic requirements have been added;

— weight measurements and markings have been added;

— off-crown requirements have been added;

— retention system strength requirements and test method has changed;

— the test method to measure the force transmission is modified using speed instead of the drop height of the mass;

— the clause Marking has been updated and the subclause Labelling has been deleted;

— Annex B has been replaced by a new Annex A: Recommendations on the materials and construction for thermal comfort of helmets for mountaineers;

— the Bibliography has been updated and replaced by the Annex B: Standards on mountaineering equipment;

— updated Annex ZA.

This document has been prepared under a standardization request addressed to CEN 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.

Introduction

The intention of this document is to reduce the potential injury risk to the head during mountaineering activities associated with the hazards but will not eliminate them completely. A proportion of the energy of an impact is absorbed by the helmet, thereby reducing the force of the blow sustained by the head. The structure of the helmet may be damaged whilst absorbing this energy and any helmet that sustains a severe blow needs to be replaced even if damage is not apparent. There are limits to the amount of protection that can be provided and wearing a helmet cannot always prevent death or long-term disability.

Angled and tangential (rotational) impacts are one of the causes of head injuries. At the time of developing this document, no rotational test method was available. Therefore, only linear impacts to a helmeted head in the shock absorption test have been addressed. CEN/TC 158 will, in the near future, present a new test method, which can be used in future revisions of this document.

1 Scope

This document specifies requirements and test methods for protective helmets for use in mountaineering.

This document is also applicable to protective helmets used in activities with similar hazards as in mountaineering including, but not limited to, climbing, caving, canyoning, rope courses, and via ferrata climbing.

This document does not apply to protective helmets used by ski mountaineers.

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 960:2006, *Headforms for use in the testing of protective helmets*

ISO 6487:2015, *Road vehicles — Measurement techniques in impact tests — Instrumentation*

EN 13087-1:2000,[1] *Protective helmets — Test methods — Part 1: Conditions and conditioning*

EN 13087-5:2012, *Protective helmets — Test methods — Part 5: Retention system strength*

EN ISO 13688:2013,[2] *Protective clothing — General requirements (ISO 13688:2013)*

3 Terms and definitions

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

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

— ISO Online browsing platform: available at https://www.iso.org/obp/

— IEC Electropedia: available at https://www.electropedia.org/

3.1
helmet for mountaineers (hereafter referred to as helmet)
headwear primarily intended to protect the upper part of a wearer's head against hazards which might occur during mountaineering including, but not limited to, climbing, caving, canyoning, rope courses, and via ferrata climbing

3.2
shell
structure that provides the general outer form of the helmet

3.3
helmet type
helmet which is characterised by the tradename or mark, the materials and dimensions of the *shell* (3.2), the materials and dimensions of the *protective padding* (3.5), the materials and dimensions of the *retention system* (3.6)

[1] As impacted by EN 13087-1:2000/A1:2001.
[2] As impacted by EN ISO 13688:2013/A1:2021.

3.4
helmet size
range of helmet adjustment to the head

3.5
protective padding
material which is used to absorb impact energy

3.6
retention system
complete assembly by means of which the helmet is maintained in position on the head, including any devices for adjustment of the system or to enhance the wearer's comfort

3.7
chin strap
part of the *retention system* (3.6) consisting of a strap which passes under the wearer's jaw to retain the helmet in position

3.8
headform
shape replacing the head which is used for testing certain characteristics

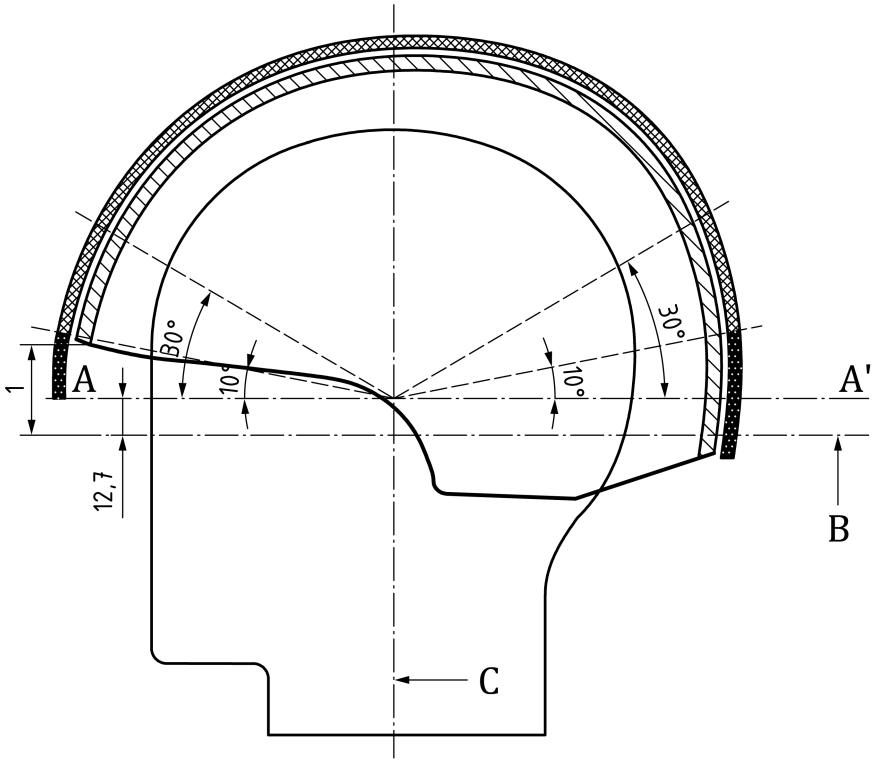
Note 1 to entry: The headform is designed in accordance with EN 960:2006.

3.9
helmet positioning index (HPI)
vertical distance measured on the longitudinal vertical plane, between the brow of the helmet (front part) and the reference plane (B), when the helmet is placed on the appropriate reference *headform* (3.8)

Note 1 to entry: The longitudinal vertical plane and the reference plane are defined in EN 960:2006.

Note 2 to entry: See Figure 1.

Dimension in millimetres



Key

1	helmet positioning index (HPI)
AA’	basic plane, see EN 960:2006
B	reference plane
C	central vertical axis
	crown area
	off-crown area

Figure 1 — Helmet positioning index

3.10
accessories
additional device(s) which can be attached to the helmet and are intended to be fully removable by the user, but which provide no protective function to the wearer

Note 1 to entry: A helmet accessory can be a lamp, camera etc.

4 Requirements

4.1 Construction requirements

4.1.1 Materials

When checked according to 5.1, for those parts of the helmet that come into contact with the skin, materials which are known to be likely to cause skin irritation or any adverse effect on health shall not be used. For a material not in general use, advice as to its suitability shall be sought before its introduction.

Helmet materials which come, or could come into prolonged contact with the skin, shall be in accordance with EN ISO 13688:2013, 4.2.

4.1.2 Design

When checked according to 5.1, there shall be no sharp edges, roughness or internal projection(s) on any part of the helmet which is in contact or potential contact with the wearer when the helmet is worn, such as is likely to cause injury to the wearer.

4.1.3 Retention system

The helmet shall be fitted with a retention system (3.6), including a chin strap. The chin strap shall be adjustable in length. The part of the chin strap which comes into contact with the jaw shall have a minimum width of 15 mm under a load of (250 ± 10) N when tested according to 5.2.

4.1.4 Ventilation

The helmet shall be ventilated.

When checked according to 5.1, the overall sum of the ventilation areas shall not be less than 4 cm^2.

NOTE Holes that are designed to attach accessories (3.10) are not considered ventilation holes.

4.1.5 Ergonomics

The helmet shall be designed to minimize any discomfort to the wearer and shall remain in place when fitted and fastened according to the manufacturer's instructions and information. When tested according to 5.3, there shall only be YES responses recorded.

4.1.6 Weight

Each helmet type shall be weighed using a weighing machine with an accuracy of 5 grams. Each measurement shall be within the range of ±10 % compared to the weight claimed by the manufacturer in subclause 6 f).

The tolerance indicated in 7 g) shall be no more than ±10 %.

NOTE The range of ±10 % covers the variability of 3 times the standard deviation in helmet production.

4.2 Performance requirements

4.2.1 Shock absorption

4.2.1.1 Vertical force transmission

When a helmet is tested according to 5.8 with the hemispherical striker described in 5.8.3.5, the force transmitted to the headform shall not exceed 10 kN.

4.2.1.2 Front, side, rear and off-crown force transmission

When a helmet is tested according to 5.8 with the flat striker described in 5.8.3.5, the force transmitted to the headform shall not exceed 10 kN.

4.2.2 Penetration

When a helmet is tested according to 5.9 on two impact points, that are at least 50 mm apart from each other, with the conical striker described in 5.9.3.4, there shall be no contact between the striker and the headform.