



**SLOVENSKI STANDARD**  
**kSIST FprEN 12492:2011**  
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**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

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

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

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**ICS:**

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**FprEN 12492**

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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 unique acceptance procedure. 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.

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## Foreword

This document (FprEN 12492:2011) has been prepared by Technical Committee CEN/TC 158 “Head protection”, the secretariat of which is held by BSI.

This document is currently submitted to the Unique Acceptance Procedure.

This document will supersede EN 12492:2000.

Annex B provides details of significant technical changes between this European Standard and the previous edition.

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(s), see informative Annex ZA, which is an integral part of this document.

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## Introduction

The protection given by a helmet depends on the circumstances of the accident and wearing a helmet cannot always prevent death or long term disability.

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 in absorbing this energy and any helmet that sustains a severe blow needs to be replaced even if damage is not apparent.

Mountaineers' helmets are fitted with a retention system to retain the helmet on the head. However, there may be a foreseeable risk that helmets could become trapped and thereby cause a risk of strangulation.

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## 1 Scope

This European Standard specifies safety requirements and test methods for safety helmets for use in mountaineering.

## 2 Normative references

The following referenced documents are indispensable for the application 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 6487:2002, *Road vehicles — Measurement techniques in impact tests — Instrumentation*

## 3 Terms and definitions

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

### 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 activities carried out by mountaineers

### 3.2

#### **shell**

hard, smoothly finished material that provides the general outer form of the helmet

### 3.3

#### **helmet type**

helmet which is characterized by:

- a) the tradename or mark;
- b) the materials and dimensions of the shell;
- c) the materials and dimensions of the protective padding;
- d) the materials and dimensions of the retention system

### 3.4

#### **protective padding**

material which is used to absorb impact energy

### 3.5

#### **comfort padding**

liner material provided for the wearer's comfort

### 3.6

#### **sizing padding**

liner material used for adjustment of the helmet size

### 3.7

#### **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



### 3.8

#### **chin strap**

part of the retention system consisting of a strap which passes under the wearer's jaw to retain the helmet in position

### 3.9

#### **headform**

shape replacing the head which is used for testing certain characteristics

NOTE The headform is designed in accordance with EN 960:2006.

## 4 Requirements

### 4.1 Construction requirements

#### 4.1.1 Materials

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.

#### 4.1.2 Projections

There shall be no sharp edges, roughness or projection 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, including a chin strap. The retention system shall have at least three separate points of attachment to the shell. The chin strap shall be adjustable in length. That 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 N.

#### 4.1.4 Ventilation

All helmets shall be ventilated.

The sum of the cross-sectional areas of such ventilation shall not be less than 4 cm<sup>2</sup> when measured on the surface of the helmet.

### 4.2 Performance requirements

#### 4.2.1 Shock absorption

##### 4.2.1.1 Vertical energy absorption capacity

When a helmet is tested by the method described in 5.5, the force transmitted to the headform shall not exceed 10 kN, for a drop height of (2 000 ± 10) mm of the hemispherical striker described in 5.5.3.4.

##### 4.2.1.2 Front energy absorption capacity

When a helmet is tested by the method described in 5.5, the force transmitted to the headform shall not exceed 10 kN, for a drop height of (500 ± 10) mm of the flat striker described in 5.5.3.4.

**FprEN 12492:2011 (E)****4.2.1.3 Side energy absorption capacity**

When a helmet is tested by the method described in 5.5, the force transmitted to the headform shall not exceed 10 kN, for a drop height of  $(500 \pm 10)$  mm of the flat striker described in 5.5.3.4.

**4.2.1.4 Rear energy absorption capacity**

When a helmet is tested by the method described in 5.5, the force transmitted to the headform shall not exceed 10 kN, for a drop height of  $(500 \pm 10)$  mm of the flat striker described in 5.5.3.4.

**4.2.2 Penetration**

When a helmet is tested on two points of impact, apart from each other as at least 50 mm, by the method described in 5.6, there shall be no contact between the striker and the headform, for a drop height of  $(1\ 000 \pm 5)$  mm of the conical striker described in 5.6.3.4.

**4.2.3 Retention system strength**

When a helmet is tested by the method described in 5.7, the maximum elongation of the whole system shall not exceed 25 mm.

**4.2.4 Retention system effectiveness (roll off)**

When a helmet is tested by the method described in 5.8, for the front way and rear way tests, the helmet shall not come off the headform.

**5 Test methods****5.1 Sampling**

For every type of helmet, helmet samples shall be submitted for testing in the condition in which they are offered for sale, including any requisite holes in the shell and any means of attachment for accessories specified by the manufacturer.

No helmet that has been subjected to testing shall be offered for sale.

For every type of helmet, 11 helmet samples are required for the tests (see Table 1):

- 6 of the smallest size of the range of the helmet type; and
- 5 of the largest size of the range of the helmet type.

**5.2 Helmet adjustment**

Before any testing on a headform, the helmet shall be adjusted to the headform size and positioned in accordance with the manufacturer's instructions.

The smallest headform is the smallest size, in accordance with 5.4, which is within the size range specified by the manufacturer for the particular size and type of helmet.

The largest headform is the largest size, in accordance with 5.4, which is within the size range specified by the manufacturer for the particular size and type of helmet.