



BSI Standards Publication

Mountaineering equipment — Helmets for ski mountaineers — Safety requirements and test methods

National foreword

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The UK participation in its preparation was entrusted to Technical Committee PH/6/6, Protective helmets for sport and leisure.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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European foreword

This document (EN 18100:2025) has been prepared by Technical Committee CEN/TC 158 “Head protection”, the secretariat of which is held by SIS.

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of an identical text or by endorsement, at the latest by April 2026 and conflicting national standards shall be withdrawn at the latest by April 2026.

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 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.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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Introduction

Helmets for ski mountaineers are intended to provide protection to the wearer:

- during the ascent, similar to mountaineering, with risk of falling rocks, ice or other objects;
- during the descent, similar to alpine skiing, with the risk of falling onto a surface.

At the time of writing, the ISMF's (International Ski Mountaineering Federation) "Sporting Rules and Regulations" require that helmets comply with EN 12492 "Helmets for mountaineers" and EN 1077 class B "Helmets for alpine skiers and snowboarders". Those requirements lead to insufficient helmet ventilation during ascent and discomfort for the user during such activities and therefore increases the risk of the user not wearing the protective helmet. This double certification could preferably be replaced by a specific standard for ski mountaineers with more relevant requirements.

The intention of this document is to reduce the potential injury risk associated with the hazards but will not eliminate them completely. No off-crown penetration test has been introduced in this document because the risk of penetration in ski mountaineering (3.1) is considered low compared to alpine skiing and hence leads to the possibility of better ventilation.

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. There are limits to the amount of protection that can be provided and wearing a helmet cannot always prevent serious injury, long-term disability or death. A helmet may only be a part of the protection that is required to carry out this activity.

A list of mountaineering equipment standards is found in informative Annex B.

Angled and tangential (rotational) impacts are one of the causes of head injuries. CEN/TC 158 has published a new test method, EN 17950:2024. CEN/TC158 WG 13 requires more time to validate the requirements of the test method which then can be used in future revisions of this document.

1 Scope

This document specifies requirements and test methods for protective helmets for ski mountaineers intended to protect the head of the user in order to reduce the risk of impact injury.

This document is also applicable to protective helmets used in activities with similar hazards including but not limited to: ski-touring, speed-touring, ski fitness, split-boarding, skimo and telemark touring, but does not apply to protective helmets for alpine skiers and snowboarders.

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*

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

EN 13087-2:2012, *Protective helmets — Test methods — Part 2: Shock absorption*

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

EN 13087-6:2012, *Protective helmets — Test methods — Part 6: Field of vision*

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

ISO 6487:2015,³ *Road vehicles — Measurement techniques in impact tests — Instrumentation*

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

ski mountaineering

sport or recreational activity of skiing and climbing across mountainous terrain involving a mix of mountaineering and skiing techniques with equipment specially designed for walking uphill as well as skiing downhill, primarily but not exclusively outside lift-served areas

3.2

helmet for ski mountaineers

item to be worn on the head, intended to absorb the energy of a foreseeable impact thus reducing the risk of injury to the head during *ski mountaineering* (3.1) and related activities with similar hazards

Note 1 to entry: Helmet for mountaineers is hereafter referred to as helmet.

¹ As amended by EN 13087-1:2000/A1:2001.

² As amended by EN 13688:2013/A1:2021.

³ As amended by ISO 6487:2015/Amd 1:2017.

3.3**shell**

structure that provides the general outer form of the helmet

3.4**helmet type**

category of helmets, which does not differ in such essential respects as the materials or dimensions or construction of the helmet, of the *retention system* (3.6) or of the *protective padding* (3.5)

3.5**helmet size**

range of helmet adjustment to the head

3.6**protective padding**

material which is used to absorb impact energy

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* (3.7) 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 1 to entry: The headform is designed in accordance with EN 960:2006.

3.10**helmet positioning index****HPI**

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

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

Note 2 to entry: See Figure 1.