



SLOVENSKI STANDARD

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Varovalne čelade za mlajše otroke

Impact protection helmets for young children

Stoßschutzhelme für Kleinkinder

Casques de protection contre les chocs pour les jeunes enfants

<https://standards.iteh.ai/catalog/standards/sist/7d607a5a-76bd-41fa-8d63-4eccc5dd591/sist-en-1080-2013>

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ICS:

13.340.20	Varovalna oprema za glavo	Head protective equipment
97.190	Otroška oprema	Equipment for children

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

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February 2013

ICS 13.340.20; 97.190

Supersedes EN 1080:1997

English Version

Impact protection helmets for young children

Casques de protection contre les chocs pour les jeunes
enfants

Stoßschutzhelme für Kleinkinder

This European Standard was approved by CEN on 7 December 2012.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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Foreword

This document (EN 1080:2013) has been prepared by Technical Committee CEN/TC 158 "Head protection", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by August 2013, and conflicting national standards shall be withdrawn at the latest by August 2013.

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 supersedes EN 1080:1997.

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.

The significant technical changes that have been made since the previous version of this standard are described in Annex A.

According to the CEN/CENELEC Internal Regulations, the national standards organisations 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.

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Introduction

This European Standard specifies requirements and test methods for helmets intended for use by young children while pursuing recreational activities in environments which have proven risks of head injuries in combination with risk of strangulation.

The helmet itself is not intended to be worn at play in the playground or while using playground equipment. Head protection in these areas is covered by standards for design of playground equipment and surfaces. Since there is a foreseeable risk of being trapped by the helmet, these helmets are equipped with a self-release mechanism to minimise the risk.

This standard does not replace other standards for head protection. Helmets according to this standard do offer shock absorption performance of the same value as i.e. helmets for pedal cyclists or skiers. However, they do not meet all other requirements which these helmets fulfil, for example strength of retention system or penetration for skiing helmets.

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.

The Technical Committee which has prepared this standard realises that it is of importance for the wearer's comfort and psychometric performance that a helmet is ventilated. At the time this European Standard was prepared, no method for measuring the ventilating capacity of a helmet was recognised. For that reason, no requirements concerning ventilation or heat transmission have been introduced.

1 Scope

This European Standard specifies requirements and test methods for helmets intended for use by young children while pursuing recreational activities in environments which have proven risks of head injuries in combination with risk of strangulation.

Requirements and the corresponding methods of test are given for the following:

- construction including field of vision;
- shock absorbing properties;
- retention system properties, including chin strap, fastening devices and self-release system;
- marking and information.

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

EN 13087-1:2000, *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, *Protective helmets — Test methods — Part 6: Field of vision*

3 Terms and definitions

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

3.1

protective helmet

item to be worn on the head and intended to absorb the energy of an impact thus reducing the risk of injury to the head

3.2

helmet type

category of helmets which does not differ in such essential respects as the materials or dimensions of the helmet shell, the construction of the helmet, the retention system or the protective padding

Note 1 to entry: Helmet type may include a range of helmet sizes, provided that the helmet shell, including the protective padding, is the same.

3.3

padding

EN 1080:2013 (E)**3.3.1****protective padding**

material used to absorb impact energy

3.3.2**comfort padding**

lining material provided for the wearer's comfort

3.3.3**sizing padding**

lining material used for adjustment of the helmet size

3.4**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

3.5**chin-strap**

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

3.6**self-release system**

mechanism which releases when loaded with a certain force

3.7**basic plane**

for a given headform, horizontal plane located at a vertical distance 'x' below and parallel to the reference plane

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Note1 to entry: This corresponds to the *basic plane* of the human head being the longitudinal plane which passes through the lower level of the eye orbits and the upper level of the external opening of the ear canals.

3.8**reference plane**

for a given headform, when erect, horizontal plane located at a vertical distance 'y' measured down the central vertical axis from the centre of the crown

Note1 to entry: All horizontal datum levels are quoted relative to this plane.

3.9**test area**

area of the helmet in which impact tests may be conducted which corresponds to the minimum protected area of the human head

4 Requirements**4.1 Materials**

For those parts of the helmet coming into contact with the skin, the material used shall not be subject to any known appreciable alteration from contact with sweat or with substances likely to be found in toiletries.

Materials shall not be used which are known to cause skin disorders or other adverse effects on health. For a material not in general use, advice as to its suitability shall be sought before its introduction.

Examples for documents which can be presented as evidence of chemical innocuousness are given in the note.

NOTE The following list of documents is given for information and as examples of documents to be examined:

- a) materials specifications;
- b) safety data sheets relating to the materials;
- c) information relating to the suitability of the materials for use with food, in medical devices, or other relevant applications;
- d) information relating to toxicological, allergenic, carcinogenic, toxic to reproduction or mutagenic investigations on the materials;
- e) information relating to ecotoxicological and other environmental investigations on the materials.

The examination shall determine whether the claim that the materials are suitable for use in the protective helmet is justified. Particular attention needs to be paid to the presence of plasticisers, unreacted components, heavy metals, impurities and the chemical identity of pigments and dyes.

All metallic materials which could come into prolonged contact with the skin (e.g. buckles, studs, fittings) shall have an emission of nickel of less than 0,5 µg/cm² per week. The method of test shall be according to EN 1811.

4.2 Construction iTeh STANDARD PREVIEW

The helmet normally consists of a means of absorbing impact energy, a means of retaining the helmet on the head and a self-release system. (standards.itih.ai)

The helmet shall be so designed and shaped that in normal use the parts of it in contact or in potential contact with the user shall be free of roughness, sharp edges, projections and anything which could be harmful to the user. SIST EN 1080:2013
https://standards.itih.ai/standards/standards/sist-en-1080-2013-76b1-419-8d63-4eccf5dd591/sist-en-1080-2013

Helmets should:

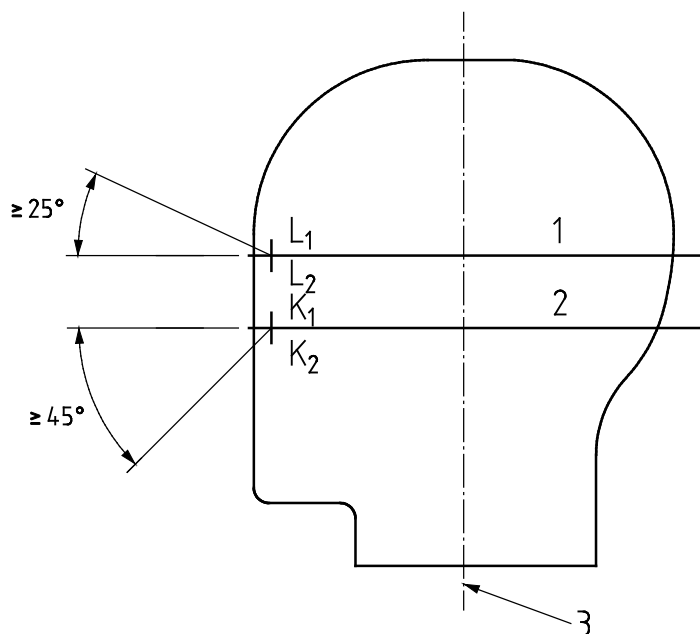
- have low weight;
- be ventilating;
- be easy to put on and take off;
- be usable with spectacles;
- not significantly interfere with the ability of the user to hear traffic noise.

4.3 Field of vision

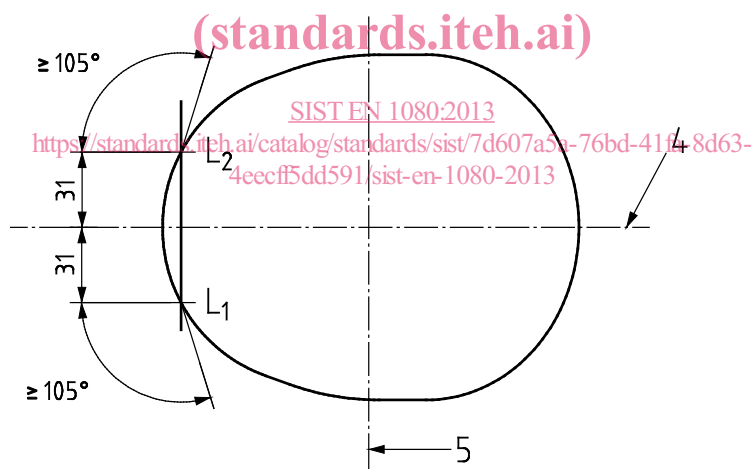
When tested according to 5.6, there shall be no occultation in the field of vision bounded by angles as follows (see Figure 1):

- horizontally: min 105° from the longitudinal vertical median plane to the left and right hand sides;
- upwards: min 25° from the reference plane;
- downwards: min 45° from the basic plane.

Linear dimensions in millimetres



a) Section of headform in longitudinal vertical plane



b) Section of headform in reference plane

Key

- | | | | |
|---|-----------------------|---|-----------------------------|
| 1 | reference plane | 4 | vertical longitudinal plane |
| 2 | basic plane | 5 | vertical transverse plane |
| 3 | central vertical axis | | |

L1 and L2 represent the centre of the eyes.

K1 and K2 represent the lower edge of the eye sockets (orbits).

Figure 1 — Field of vision

4.4 Shock absorbing capacity

The helmet shall give protection to the part of the user's head covered by the test area of the helmet as specified in 5.4.1.

When tested according to 5.3 and 5.4, the peak acceleration shall not, for each impact, exceed 250 g for the velocity of $(5,42 + 0,1/-0)$ m/s on the flat anvil, and $(4,57 + 0,1/-0)$ m/s on the kerbstone anvil.

NOTE These are theoretically equivalent to 1 497 mm and 1 064 mm drop heights respectively.

4.5 Retention system

4.5.1 General

Means shall be provided for retaining the helmet on the wearer's head. All parts of the retention system fastened to the helmet shall be securely attached. Securely attached means that when tested according to 5.5, no part of the retention system releases before the self-release system.

4.5.2 Chin strap

The chin strap shall not include a chin cup. Any chin strap shall be not less than 15 mm wide. The width of the chin strap shall be measured prior to testing and without any tension on the strap. Chin straps may be fitted with means of enhancing comfort.

4.5.3 Fastening device

Any retention system shall be fitted with a device to adjust and maintain tension in the system. The device shall be capable of adjustment so that the buckle can be positioned centrally below the jaw. This has to be assessed by fitting the helmet on the appropriate headform and by positioning it according to the manufacturer's instructions or in the manner in which the helmet is intended to be worn on the head.

4.6 Self-release system

4.6.1 General

Self-release systems with adjustable opening force shall satisfy the requirements of 4.6.2 throughout the range of adjustment. The self-release system may be such that part of the retention system is not fastened to the helmet.

4.6.2 Release force

When tested according to 5.5, the self-release system shall open in all the tested helmets by a force exceeding 90 N but not exceeding 160 N.

4.6.3 Colour

To identify helmets with a self-release system all or some of the visible parts of the retention system shall in accordance with this standard be visibly and indelibly coloured green.

4.7 Durability

After being tested, the helmet shall not exhibit damage that could cause significant injury to the wearers head and neck (sharp edges, points).