SLOVENSKI STANDARD
oSIST prEN 1080:2023

01-april-2023

Nadomešča:
SIST EN 1080:2013

Varovalne čelade za mlajše otroke

Impact protection helmets for young children

Stoßschutzhelme für Kleinkinder

Casques de protection contre les chocs pour les jeunes enfants

Ta slovenski standard je istoveten z: **prEN 1080**

ICS:

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

oSIST prEN 1080:2023 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 1080

February 2023

ICS

Will supersede EN 1080:2013

English Version

Impact protection helmets for young children

Casques de protection contre les chocs pour les jeunes enfants

Stoßschutzhelme für Kleinkinder

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 1080:2023 E

Contents

Page

European foreword

This document (prEN 1080:2023) 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 1080:2013.

In comparison with the previous edition, the following technical modifications have been made:

— In this revision we analysed different hazards related to head impact situations for cyclists and the most common risks associated with them.

— Requirements for rotational shock absorption at impacts are added;

— Normative reference to test method for impacts with a tangential component has been included;

— Inclusion head injury criteria;

— The impact speeds used in the different tests are based on available information in literature and risk analysis;

This document has been prepared under the standardization request M/571 given to CEN by the European Commission and the European Free Trade Association and supports essential requirements of Regulation (EU) 2016/425.

For relationship with EU Regulation (EU) 2016/425, see informative Annex ZA, which is an integral part of this document.

Introduction

This document specifies the requirements for protective headwear for use by young children while pursuing recreational activities, such as cycling, roller-sports and sledging, in environments which have risks of head injuries in combination with risk of strangulation.

The requirements in this document are concerned with the performance of a helmet to reduce the risk of injury to the skull, brain and part of the head within the specified area of protection. Performance levels and test methods are based upon proven methods of test and technical criteria and enhanced by data from expert sources in the field of head protection. A unique feature of this standard is the requirement on a self-release mechanism to minimize the risk for children to be hanged in the chin strap of a helmet. The risk arises when the child combines the intended activity with playing. This is a well-known risk, there have been at least 9 known cases in Europe with fatal outcomes where children have been strangled by traditional chin straps. The release properties in the standard have been designed for release at entrapment, and based on scientific investigations on chin strap forces, to ensure that the helmet is not released in case of a severe cycle accident.

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.

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 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.

Parents need to be made aware that the protection given by a helmet depends on the circumstances of the accident and wearing of a helmet cannot always prevent injury, death or disability.

Cycle related activities can result in a broad spectrum of accident situations. Most accident statistics relates to cycle accidents and less is written about the accident situation for other activities such as roller sports and sledging. Depending on the cycle accident situation the helmet and head can be loaded in compression and also with a tangential force leading to rotation of the helmet and head. The most common cycle accident for cyclists are single accidents to the ground. The impact surface can alter from asphalt, gravel and other impact surfaces. To capture the overall accident situation, the test methods defined in this document are designed to take as many aspects as possible into account without restricting the usability of the helmet.

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 can be damaged in absorbing this energy.

1 Scope

This document specifies requirements and test methods for helmets intended for use by young children to provide head protection in situations with risks of head injuries in combination with risk of strangulation.

The document is applicable for but not limited to:

— children's cycling;

— children's roller-sports activities (skateboarding, roller skating, kick scooter riding etc);

— children's sledging activities (use of toboggan, sledge, snow tray etc);

when there is a risk of strangulation due to the child playing in connection to the intended activity.

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 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 ISO 13688:2013, *Protective clothing - General requirements (ISO 13688:2013)*

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

prEN 17950:2023, *Protective helmets — Test methods — Shock absorption including measuring rotational kinematics*

3 Terms and definitions

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

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

- IEC Electropedia: available at https://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

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 or construction of the helmet, of the *retention system* (3.4) or of the *protective padding* (3.3.1)

3.3
padding

3.3.1
protective padding
material used to absorb impact energy

3.3.2
comfort padding
lining material provided for the wearer's comfort (for better fit, to make the helmet warmer, etc)

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, sizing or to enhance the wearer's comfort

3.5
chin strap
part of the *retention system* (3.4) 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* (3.8)

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

[SOURCE: EN 960:2006, 2.10]

3.8
reference plane
construction plane parallel to the *basic plane* (3.7) at a distance from it which is a function of the size of the headform

Note 1 to entry: All horizontal datum levels are quoted relative to this plane.

[SOURCE: EN 960:2006, 2.5]

3.9
test area
area of the helmet in which impact tests are conducted which corresponds to the minimum protected area of the human head

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

EXAMPLE Helmet accessory can be a lamp, camera etc.

3.11
non-integral additional protective devices
additional protective device(s) supplied or recommended by the manufacturer which can be attached to the helmet and intended to be removable by the user

EXAMPLE (sun)visors

3.12
protective lower face cover (chin guard)
detachable, movable or integral (permanently fixed) part of the helmet covering the lower part of the face and intended to protect the chin of the user against impact

3.13
linear shock absorption
head protection towards direct head impact. Evaluated with a flat and kerbstone anvil

3.14
rotational shock absorption
head protection towards oblique head impact. Evaluated with an angled anvil

3.15
Pilz plane
plane angled 10° from the *reference plane* (3.8) at the rear of the head at the intersection of the reference plane and the midsagittal plane

[SOURCE: prEN 17950:2023, 3.3]

4 Requirements

4.1 Materials innocuousness

The material requirements shall be verified during inspection in 5.2, by safety data sheets provided in documents supplied by the manufacturer.

The material used shall not be subject to any known appreciable alteration from contact with sweat or toiletries or cleaners recommended by the manufacturer. The material used in those parts of the helmet coming, or that can come into contact with the skin, shall not be known to cause skin disorders or other adverse effects on health in accordance with, EN ISO 13688:2013, 4.2.

4.2 Construction

There shall be no sharp edges, roughness or projection on any parts of the helmet which are in contact, or potential contact, with the wearer, when the helmet is worn, such as is likely to cause injury to the wearer.

The helmet shall withstand handling. The helmet shall be so designed and shaped that its parts, such as rivets, ventilators, edges, fastening device and the like, are not likely to injure the user in reasonably foreseeable use.

To minimize the probability of getting caught up at use, the helmet shall not be provided with or intended to have

— a protective lower face cover (chin guard) (3.12),

— non-integral additional protective devices (3.11),

— accessories (3.10).

4.3 Field of vision

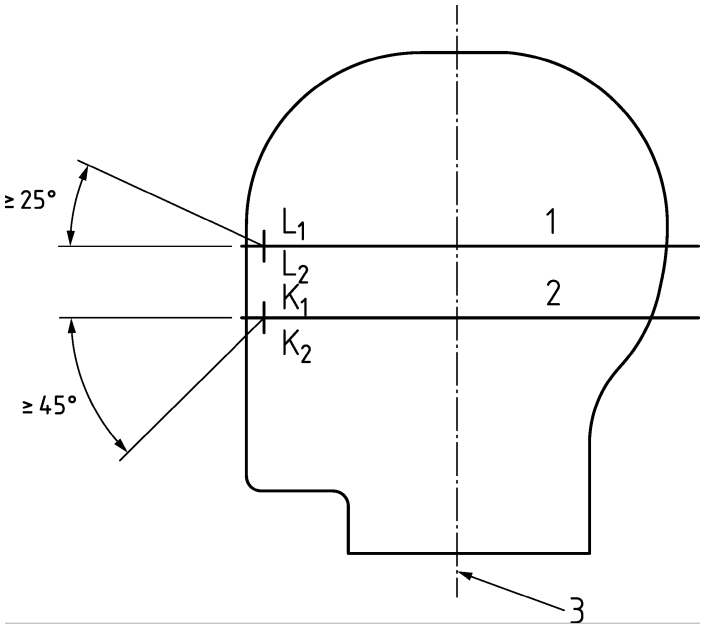
When tested according to 5.5, there shall be no occultation in the field of vision bounded by angles as follows (see Figure 1):

a) horizontally: min 105° from the longitudinal vertical median plane to the left and right hand sides;

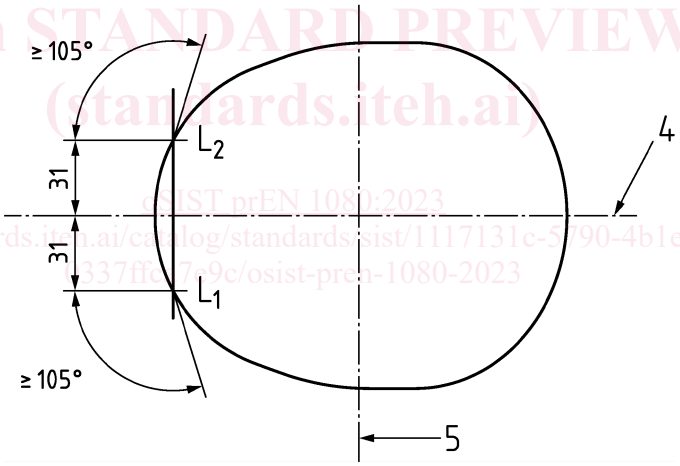
b) upwards: min 25° from the reference plane (3.8);

c) downwards: min 45° from the basic plane (3.7).

Dimensions in millimetres



a) Section of headform in longitudinal vertical plane



b) Section of headform in reference plane

Key

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

NOTE 1 L1 and L2 represent the centre of the eyes.

NOTE 2 K1 and K2 represent the lower edge of the eye sockets (orbits).

Figure 1 — Field of vision