SLOVENSKI STANDARD
SIST EN 1078:1998

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Čelade za kolesarje in uporabnike rolk in kotalk

Helmets for pedal cyclists and for users of skateboards and roller skates

Helme für Radfahrer und für Benutzer von Skateboards und Rollschuhen

Casques pour cyclistes et pour utilisateurs de planches a roulettes et de patins a roulettes

Ta slovenski standard je istoveten z: **EN 1078:1997**

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

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Descriptors: sports, cycling, accident prevention, helmets, specifications, equipment specifications, field of visibility, shock resistance, fastenings, dimensions, tests, marking, information

English version

Helmets for pedal cyclists and for users of skateboards and roller skates

Casques pour cyclistes et pour utilisateurs de planches à roulettes et de patins à roulettes

Helme für Radfahrer und für Benutzer von Skateboards und Rollschuhen

This European Standard was approved by CEN on 1997-01-09. 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 Central Secretariat or to any CEN member.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart,36 B-1050 Brussels

Contents

Foreword

This European Standard 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of an identical text or by endorsement, at the latest by August 1997, and conflicting national standards shall be withdrawn at the latest by August 1997.

This European Standard has been prepared under a Mandate given to CEN by the of 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 standard.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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.

The technical committee which has prepared this standard realizes that it is of importance for the wearer's comfort and psychrometric performance that a helmet is ventilated. At the time the standard was prepared no method for measuring the ventilating capacity of a helmet was recognized. For that reason no requirements concerning ventilation or heat transmission have been introduced. Manufacturers of helmets are urged to design their helmets to encourage a flow of air over the wearer's head.

Pedal cyclists' helmets and helmets for users of skateboards and roller skates are fitted with a retention system to retain the helmet on the head. However, there may be a foreseeable risk that helmets of young children could become trapped and thereby cause a risk of strangulation of the child. In such cases an impact protection helmet for young children (see EN 1080) should be used.

1 Scope

This European Standard specifies requirements and test methods for helmets worn by users of pedal cycles, skateboards and roller skates.

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 and fastening devices;
- marking and information.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to, or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 960		Headforms for use in the testing of protective helmets
ISO 6487	: 1987	Road vehicles - Measurement techniques in impact tests - Instrumentation

3 Definitions

For the purpose of this standard, the following definitions apply:

3.1 **protective helmet**: An 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 or of the protective padding.

3.3 **padding**:

3.3.1 **protective padding**: A material used to absorb impact energy;

3.3.2 **comfort padding**: A lining material provided for the wearer's comfort;

3.3.3 **sizing padding**: A lining material used for adjustment of the helmet size.

3.4 **retention system**: The 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 **basic plane of the human head**: A plane at the level of the external ear opening (external auditory meatus) and the lower edge of the eye sockets (orbits).

3.7 **basic plane of a headform**: The plane relative to the headform that corresponds to the basic plane of the human head.

3.8 **reference plane**: A construction plane parallel to the basic plane of the headform at a distance from it which is a function of the size of the headform.

3.9 **test area**: The 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 should be known not to undergo 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.

4.2 Construction

The helmet normally consists of a means of absorbing impact energy and means of retaining the helmet on the head in an accident.

The helmet should be durable and withstand handling.

The helmet shall be so designed and shaped that parts of it (visor, rivets, ventilators, edges, fastening device and the like) are not likely to injure the user in normal use.

NOTE: 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 in accordance with 5.7 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

4.4 Shock absorbing capacity

The helmet shall give protection to the forehead, rear, sides, temples and crown of the head.

When tested in accordance with 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

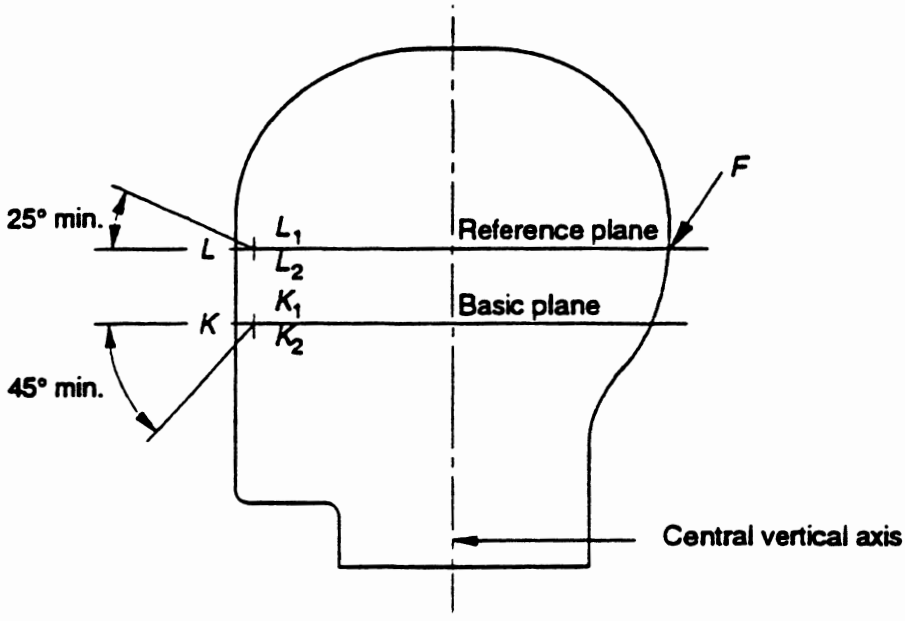
the kerbstone anvil.

NOTE: These are theoretically equivalent to 1497 mm and 1064 mm drop heights respectively.

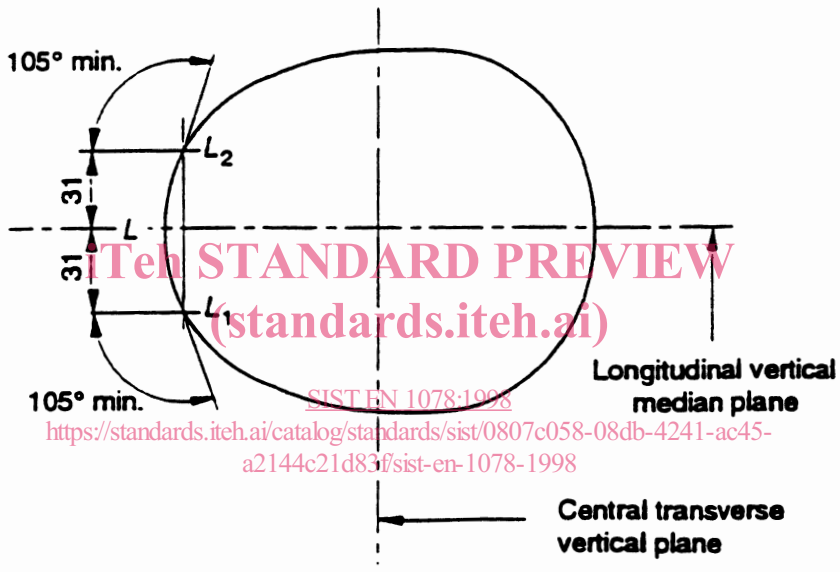
4.5 Durability

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

Linear dimensions in millimetres



Section of headform in longitudinal vertical plane



Section of headform in reference plane

Figure 1: Field of vision

4.6 Retention system

4.6.1 General

Means shall be provided for retaining the helmet on the wearer's head. All parts of the retention system shall be securely attached to the helmet.

4.6.2 Chin strap

The chin strap shall not include a chin cup. Any chin strap shall be not less than 15 mm wide. Chin straps may be fitted with means of enhancing comfort for the wearer.

4.6.3 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 does not sit on the jaw bone.

4.6.4 Colour

No part of the retention system shall be coloured green.

NOTE: It is recommended that the opening mechanism be marked with red or orange colour.

4.6.5 Strength

When tested in accordance with 5.5, the dynamic extension of the retention system shall not exceed 35 mm and the residual extension shall not exceed 25 mm. For this purpose, extension includes slippage of the fastening device.

Damage to the retention system shall be accepted provided that the above requirements are met.

NOTE: In this test slippage of the fastening device can be measured and recorded separately from other contributions to the extension but this is for information only and is not subject to a separate requirement.

4.6.6 Effectiveness

When tested in accordance with 5.6 the helmet shall not come off the headform.

4.6.7 Ease of release

Following the strength test in accordance with 5.5 and with the load still applied, it shall be possible to open the release system with one hand.

5 Testing

5.1 Headforms

The headforms used shall comply with EN 960. The sizes in table 1 shall be used, except for determination of shock absorbing capacity, for which only sizes A, E, J, M and O are available.

For determination of retention system strength and ease of release the headforms used shall comply with EN 960 at least down from the basic plane.

Table 1: Sizes of headforms

Code letter	Inside circumference of helmet, mm
A	500
C	520
E	540
G	560
J	570
K	580
M	600
O	620

5.2 Inspection and determination of mass

Inspect the helmet to ascertain whether it is suitable for its intended purpose and fulfils the general requirements in 4.2.

Determine the mass of the helmets of the same size submitted for testing. Calculate and record the mean value in g rounded off to the nearest 10 g, stating the size of the helmet.

5.3 Number of samples and sequence of tests

For each helmet type, four helmets for each headform size that fits within the manufacturers claimed head size range shall be submitted for testing.

The sequence of tests performed on each helmet size and the tests performed on the same sample are given in table 2.

Table 2: Sequence of test and tests per sample

Performance test	Sequence of test	Sample number		
Retention system effectiveness (5.6)	1st	1	-	-
Shock absorbing capacity (5.4)	2nd	1	2	3
Retention system strength (5.5)	3rd	-	2	3