SLOVENSKI STANDARD
SIST EN 13087-4:2001

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Varovalne čelade - Preskusne metode - 4. del: Učinkovitost zadrževalnega sistema

Protective helmets - Test methods - Part 4: Retention system effectiveness

Schutzhelme - Prüfverfahren - Teil 4: Wirksamkeit des Haltesystems

Casques de protection - Méthodes d'essai - Partie 4: Efficacité du systeme de rétention

Ta slovenski standard je istoveten z: **EN 13087-4:2000**

ICS:

13.340.20 Varovalna oprema za glavo Head protective equipment

SIST EN 13087-4:2001 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

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English version

Protective helmets - Test methods - Part 4: Retention system effectiveness

Casques de protection - Méthodes d'essai - Partie 4: Efficacité du système de rétention

Schutzhelme - Prüfverfahren - Teil 4: Wirksamkeit des Haltesystems

This European Standard was approved by CEN on 18 June 2000.

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.

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 Central Secretariat has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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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of an identical text or by endorsement, at the latest by April 2001, and conflicting national standards shall be withdrawn at the latest by April 2001.

This European Standard 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 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

It consists of ten Parts as follows:

Part 1 : Conditions and conditioning
Part 2 : Shock absorption
Part 3 : Resistance to penetration
Part 4 : Retention system effectiveness
Part 5 : Retention system strength
Part 6 : Field of vision
Part 7 : Flame resistance
Part 8 : Electrical properties
Part 9 : Mechanical rigidity
Part 10 : Resistance to radiant heat

Introduction

This standard is intended as a supplement to the specific product standards for protective helmets (helmet standards). Test methods may be applicable to complete helmets or parts thereof, and may be referenced in the other helmet standards

Performance requirements are given in the appropriate helmet standard, as are such prerequisites as the number of samples, preconditioning, preparation of samples for the tests, sequence and duration of testing and assessment of test results. If deviations from the test method given in this standard are necessary, these deviations will be specified in the appropriate helmet standard.

1 Scope

This European Standard describes methods of test for protective helmets. The purpose of these tests is to enable assessment of the performance of the helmet as specified in the appropriate helmet standard.

This European Standard specifies the method of test for retention system effectiveness.

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 (including amendments).

EN 960:1994 Headforms for use in the testing of protective helmets.

EN 13087-1 Protective helmets – Test methods - Part 1 : Conditions and conditioning

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in this standard may be found in the appropriate helmet standard.

4 Prerequisites

In order to implement this Part of this standard, at least the following parameters shall be specified in the appropriate helmet standard:-

a) performance requirements
b) number of samples
c) preparation of samples
d) sequence of conditioning
e) sequence of tests
f) direction of application of the force
g) sizes of the headforms
h) impact energy, including tolerance, of the falling mass
i) fitting instructions

5 Method

5.1 General

Testing shall be performed in the ambient conditions specified in EN 13087-1.

This test may be performed so that the pull is exerted from the front and/or from the rear. The method to be used is specified in the helmet standard.

5.2 Principle

The helmet is mounted on a test headform and then subjected to a sudden force applied at the front and/or the rear edge of the helmet, tending to rotate it on the headform. The extent of any movement is observed.

5.3 Apparatus

5.3.1 General

The apparatus shall include:-

- a series of headforms
- a rigid base to secure the headforms
- a falling mass and associated guidance system
- a means to measure impact speed
- a steel wire

The arrangement of the apparatus is shown in Figure 1.

5.3.2 Test headforms

The headforms shall be in accordance with EN 960 : 1994, clauses 2 and 4. The sizes to be used are specified in the helmet standard, but shall be selected from sizes A, C, E, G, J, K, M and O.

5.3.3 Rigid base

The rigid base shall be such as to support the headform so that its central vertical axis is indeed vertical and so that during the test it does not move.

5.3.4 Falling mass and guidance system

A guidance system shall be provided to enable the falling mass of (10 ±0,1) kg to be dropped in guided fall on to the metal end stop. The guidance system shall have a total mass of (3 ±0,1) kg.

The falling mass shall be connected to the helmet by means of a twisted steel wire of minimum diameter 3 mm running over a pulley of diameter (100 ±2) mm and a hook of nominal width 25 mm.

The guidance system shall be such as to ensure that the falling mass falls with an impact speed of not less than 95% of that which would theoretically obtain for a free fall.

5.3.5 Means to measure impact speed

Means shall be provided to measure the speed of the falling mass at a distance of not more than 60 mm prior to impact, to within an accuracy of ±1%.

The impact speed shall be measured during the commissioning of the apparatus. It need not be done for each test.

5.4 Procedure

Fit the helmet in accordance with the fitting instructions to the smallest available headform appropriate to the helmet size. Adjust the retention system as tight as possible, by hand.

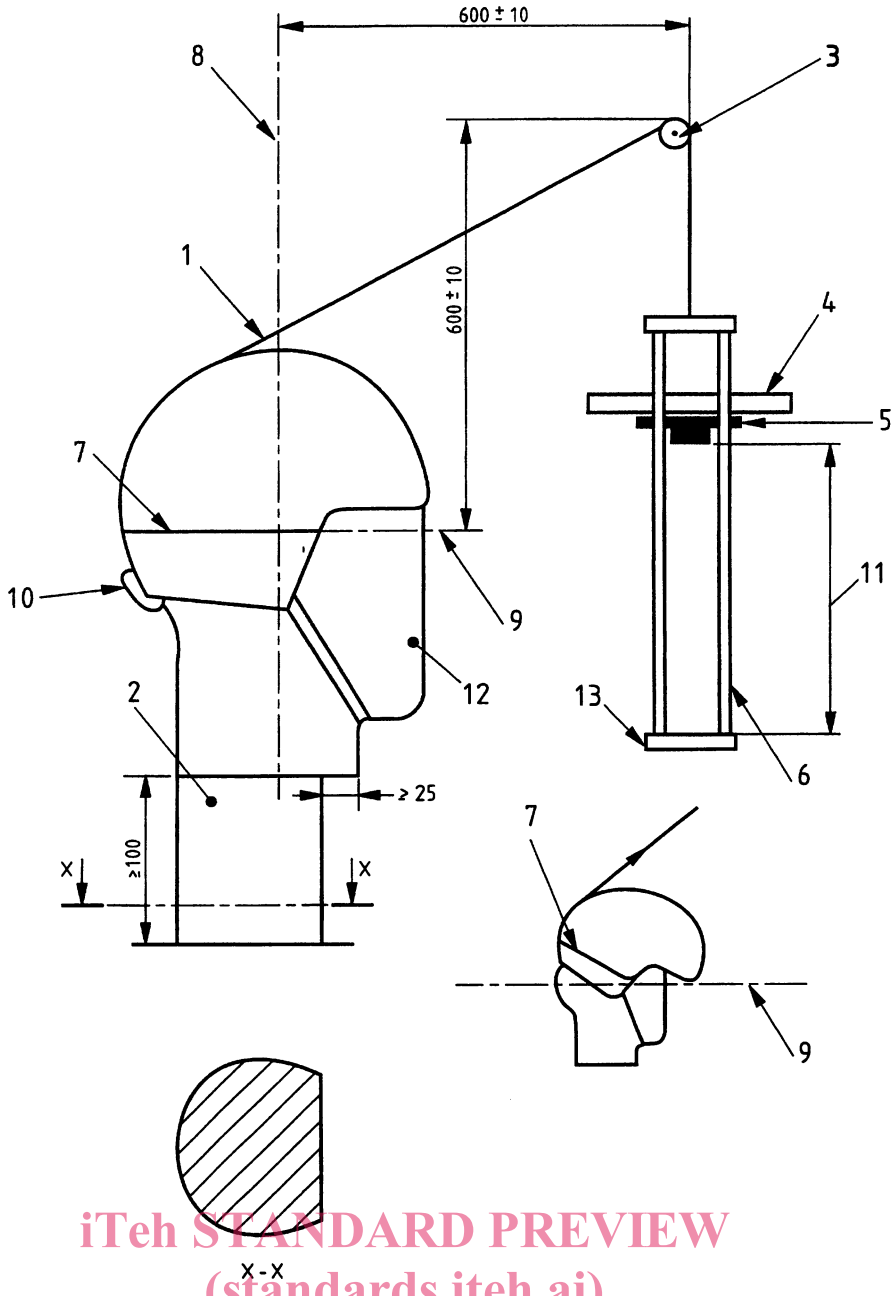
If the appropriate helmet standard requires the measurement of rotation, mark a horizontal datum line on the outside of the helmet.

Attach the hook over the front or rear edge of the helmet at the centre and arrange the steel wire to pass over the longitudinal vertical median plane of the helmeted headform. If the appropriate helmet standard requires the measurement of rotation, then measure to the nearest degree the angle that the helmet may have initially rotated. Arrange for the falling mass to fall through a drop height corresponding to the required impact energy specified in the appropriate helmet standard and release the mass. Observe whether the helmet comes off the headform completely. If it does not, and if required in the appropriate helmet standard, measure to the nearest degree the angle that the helmet has rotated, this being the angle between datum line drawn on the helmet and the horizontal (final rotation).

5.5 Report

Report if the helmet came off the headform completely or, alternatively, the angles of the initial (if required) and final rotations.

Dimensions in millimetres.



Key

1	Steel wire	8	Central vertical axis
2	Rigid base	9	Reference plane
3	Pulley	10	Hook
4	Frame	11	Drop height
5	Falling mass	12	Headform
6	Guiding system	13	Metal end stop
7	Datum line on the helmet		

Figure 1 - Arrangement of test apparatus

Annex A
(normative)
Test results – Uncertainty of measurement

For each of the required measurements performed in accordance with this standard ,a corresponding estimate of the uncertainty of measurement shall be evaluated. This estimate of uncertainty shall be applied and stated when reporting test results, in order to enable the user of the test report to assess the reliability of the data.