



SLOVENSKI STANDARD

SIST EN 13087-4:2012

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Nadomešča:

SIST EN 13087-4:2001

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 système de rétention
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Ta slovenski standard je istoveten z: EN 13087-4:2012

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ICS:

13.340.20 Varovalna oprema za glavo Head protective equipment

SIST EN 13087-4:2012

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 13087-4

February 2012

ICS 13.340.20

Supersedes EN 13087-4:2000

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 17 December 2011.

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.

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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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Foreword

This document (EN 13087-4:2012) 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 2012, and conflicting national standards shall be withdrawn at the latest by August 2012.

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 13087-4:2000.

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.

Annex B provides details of significant technical changes between this European Standard and the previous edition.

This European Standard consists of the following ten parts:

Part 1 : Conditions and conditioning;

Part 2 : Shock absorption; <https://standards.iteh.ai/catalog/standards/sist/4690b941-0c29-4aa8-bbbf-47938d12679c/sist-en-13087-4-2012>

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 rigidity¹;

Part 10 : Resistance to radiant heat.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

¹ To be published.

Introduction

This European 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.

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1 Scope

This European Standard specifies 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

The following referenced documents are indispensable for the application 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, *Protective helmets — Test methods — Part 1: Conditions and conditioning*

3 Terms and definitions

For the purposes of this document, 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 EN 13087, 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.

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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 960:2006, 2.2 and 3. The sizes to be used are specified in the helmet standard, but shall be selected from size designations 495, 515, 535, 555, 575, 585, 605 and 625 (equivalent to codes A, C, E, G, J, K, M and O, respectively, EN 960:1994).

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 $(10 \pm 0,1)$ kg to be dropped in guided fall on to the metal end stop. The guidance system shall have a total mass of $(3 \pm 0,1)$ 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.

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