SLOVENSKI STANDARD
SIST EN 14572:2005

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Visoko kakovostne ļ elade za konjeniġke aktivnosti

High Performance Helmets for Equestrian Activities

Hochleistungs-Schutzhelme für reiterliche Aktivitäten

Casques de haute protection pour sports équestres

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EUROPEAN STANDARD

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High Performance Helmets for Equestrian Activities

Casques de haute protection pour sports équestres

Hochgleistungs-Schutzhelme für reiterliche Aktivitäten

This European Standard was approved by CEN on 3 March 2005.

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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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Foreword

This document (EN 14572:2005) 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of an identical text or by endorsement, at the latest by October 2005, and conflicting national standards shall be withdrawn at the latest by October 2005.

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 the relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Introduction

The protection given by a helmet in an accident depends on the circumstances of the accident. Users need to be made aware that wearing a helmet cannot always prevent death or a long-term disability.

Riding helmets complying with European Standards offer a set of head protection devices for equestrian activities:

— Helmets for equestrian activities meeting the requirements of EN 1384;

— High performance helmets for equestrian activities meeting the requirements of this document.

Advances in materials and design methods have allowed helmets to be developed to a higher performance level.

The high performance helmet for equestrian activities offers a greater protection from side impacts. Helmets in accordance with EN 14572 are intended for use in high-risk activities. EN 14572 is not intended to supersede EN 1384.

The Technical Committee, which has prepared this document in addition to EN 1384, realizes that it is of great importance for the benefit of the wearer's comfort and psychometric performance that a helmet is well ventilated, but at the time this document was prepared no adequate method for measuring the ventilating capacity of a helmet was recognized.

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1 Scope

This document specifies performance requirements and test methods for high performance protective helmets that may or may not have a peak, for use by people involved in equestrian activities.

It includes requirements for shock absorption, resistance to penetration, lateral crush, the strength and effectiveness of the retention system and the deflection of a peak if fitted.

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

EN 13087-1, *Protective helmets - Test methods — Part 1: Conditions and conditioning*

EN 13087-2: 2000, *Protective helmets - Test methods — Part 2: Shock absorption*

EN 13087-3, *Protective helmets - Test methods — Part 3: Resistance to penetration*

EN 13087-4, *Protective helmets - Test methods — Part 4: Retention system effectiveness*

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EN 13087-5: 2000, *Protective helmets - Test methods — Part 5: Retention system strength*

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

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ISO 6487, *Road vehicles — Measurement techniques in impact tests — Instrumentation*

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3 Terms and Definitions

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

3.1
shell
material that provides the hard outer case of the helmet [EN 1384: 1996]

3.2
protective padding (liner)
padding material provided to absorb impact energy [EN 1384: 1996]

3.3
cradle
headband or other head fitting and those internal parts of the helmet other than the padding, which are in contact with the head [EN 1384: 1996]

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 [EN 1384: 1996]

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3.5
draw-lace
lace used by the wearer to make adjustments to the fit of the cradle on the head [EN 1384: 1996]

3.6
chin strap
part of the retention system consisting of a strap that passes under the wearer's jaw to keep the helmet in position [EN 1384: 1996]

3.7
chin cup
cup mounted on the retention system to locate the chin strap on the point of the wearer's chin [EN 1384: 1996]

3.8
helmet type
category of helmets which does not differ in such essential respects as the materials , construction of the helmet, retention system or protective padding [EN 1384: 1996]

NOTE Different sizes of the same design do not constitute different helmet types.

3.9
peak
extension from the basic form of the helmet above the eyes [EN 1384: 1996]

NOTE Peaks may be an integral part of the helmet or may be accessories for attachment to the helmet. They may also be an integral part of an outer cover accessory.

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3.10
area of protection
area of the headform fully or partially covered by the protective padding (liner)

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NOTE Within the area of protection ventilation and other apertures are permitted but these are restricted to the area above the test line.

3.11
test area
that area of the helmet which is subject to shock absorption and penetration tests

3.12
ventilation apertures
number of holes or slots through the helmet

3.13
retention fixing point
that part of the helmet to which the retention system is permanently attached

3.14
temporal area
that part of the helmet that projects downward in front of the central vertical axis

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4 Construction Requirements

4.1 General

The helmet shall be constructed either with or without a shell, and with a means of encouraging a flow of air over the wearer's head. If a shell is used, then the protective padding (liner) shall be securely fastened to it. The helmet shall not be fitted with nor have a chin cup.

The minimum thickness of the protective padding (liner), measured between 12 mm from the edge of the area of protection and the test line shall not be less than the minimum thickness of the protective padding (liner) in the test area as defined in 6.3. There shall be no ventilation apertures in the helmet between the lower edge of the area of protection and the test line. Testing in accordance with 6.3.

4.2 Materials

The characteristics of the materials used in the manufacture of helmets shall be not generally known to undergo substantial reduction in protective ability under the influence of ageing, or during the circumstances of use to which the helmet is normally subjected. See 6.5.

For those parts of the helmet coming into contact with the skin, the materials used shall be not generally known to undergo reduction in protective ability arising from the effects of sweat or of toiletries. The manufacturer shall not use materials generally known to cause skin disorders of a non-allergic type. See 8.1 h).

Testing in accordance with 6.1.

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4.3 Finish

All edges shall be smooth and rounded. There shall be no rigid projections on the inside of the helmet. Any external projection shall not exceed 5 mm or shall be smoothly faired to the adjacent surface, except for a peak.

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4.4 Retention system

A retention system shall be permanently fixed to the helmet and shall incorporate a chin strap not less than 15 mm wide. The system shall be permanently fitted with fastening and adjustment devices which may be combined. The retention system shall be freed by deliberate action only.

The fastening and adjustment devices shall have no sharp edges.

The part of the device intended to be operated by the wearer to cause the device to open shall be coloured orange or red. No part of the retention system shall be coloured green.

The chin strap (see 3.7) shall not have a chin cup.

The buckle shall be constructed so as not to damage the skin or flesh by pinching when fastened, and shall be protected by padding or by buckle design.

NOTE 1 It is permissible for the system to include padding or other means of enhancing comfort to the wearer.

When the helmet is fastened to the headform for the retention system test (6.8.1), the buckle shall not sit on the jawbone.

NOTE 2 This may be achieved by adjustment of the retention system in accordance with the manufacturer's instructions

Testing in accordance with 6.1.

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4.5 Headforms

The headforms specified in Table 1 shall be used for helmet sizing and for measurement of extent of protection, shock absorption, penetration, retention effectiveness, retention strength, helmet stability and field of vision.

Table 1 — Sizes of headforms for testing

Helmet size (claimed or actual) - see Note 1	Headforms for helmet sizing assessments		Headforms for extent of protection, marking-out and retention system strength and effectiveness, field of vision		Headforms for shock absorption	
mm	Size[a] mm	Code letter	Size[a] mm	Code letter	Size[a] mm	Code letter
500	500	A	500	A	500	A
510	510	B	500	A	500	A
520	520	C	520	C	500	A
530	530	D	520	C	500	A
540	540	E	540	E	540	E
550	550	F	540	E	540	E
560	560	G	560	G	540	E
570	570	J	570	J	570	J
580	580	K	580	K	570	J
590	590	L	580	K	570	J
600	600	M	600	M	600	M
610	610	N	600	M	600	M
620	620	O	620	O	620	O
630	630	P	620	O	620	O
640	640	Q	640	Q	620	O

NOTE 1 Helmet size is the claimed size in the case of headforms for helmet size assessment and is the actual size, based on the size of headform the helmet is found to fit, in the case of headforms for all other tests.

NOTE 2 Headform code letters are as given in EN 960.

[a] The headform size is the circumference of the headform measured at the reference plane (see Figure 1).

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5 Performance Requirements

5.1 Field of vision

If the helmet has a detachable peak the helmet shall be assessed with this fitted. When the helmet is mounted on the smallest headform appropriate to the size range of the helmet and complying with EN 960 size A, C, E, G, J, K, M or O, vision shall be unobstructed within three regions defined as follows:

a) Within the angle between the reference plane and a plane intersecting it at points L1 and L2 (see EN 13087-6) and sloping downward at an angle of 7;

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b) Within the space between the reference plane and the basic plane forward of two vertical planes each angled backward at an angle of 100º from the line LK;

c) Within the angle between the basic plane and a plane intersecting it along the line K1K2 and sloping downward at an angle of 45º from the basic plane.

Testing in accordance with 6.2.

5.2 Area of protection and test line

There shall be no gaps in protective padding in the zone between the area of protection and the test line. Ventilation apertures and other apertures between the test line and the lower edge of the area of protection shall not be permitted. The area of protection and the test line are shown in Figure 1; these dimensions are applicable to all sizes of helmet.

Testing in accordance with 6.3.

5.3 Shock absorption

5.3.1 General

In the series of shock absorption tests both high and low energy impacts shall be conducted, impacting various shaped anvils.

5.3.2 High energy impacts on to the hazard and hemispherical anvil

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When tested in accordance with 6.6 at an impact velocity of 6,3 m/s the acceleration shall not exceed 250g at any time and the total time during which it exceeds 150 g shall not be greater than 5 ms. The helmet shall remain on the headform, it shall not exhibit damage (sharp edges/points etc) that could cause significant injury to the wearer, the protective padding (liner) shall not be loose within the shell, and there shall be no damage to the retention system that prevents normal operation of the fastener.

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NOTE This impact velocity represents a drop height of 2,02 metres.

5.3.3 High energy impacts on to the flat anvil

When tested in accordance with 6.6 at an impact velocity of 7,7m/s the acceleration shall not exceed 250 g at any time and the total time during which it exceeds 150 g shall not be greater than 5 ms. The helmet shall remain on the headform, it shall not exhibit damage (sharp edges/points etc) that could cause significant injury to the wearer, the protective padding (liner) shall not be loose within the shell, and there shall be no damage to the retention system that prevents normal operation of the fastener.

NOTE This impact velocity represents a drop height of 3,02 metres.

5.3.4 Low energy impacts on to the flat anvil

When tested in accordance with 6.6 at an impact velocity of 4,4 m/s the acceleration shall not exceed 80 g at any time. The helmet shall remain on the headform, it shall not exhibit damage (sharp edges/points etc) that could cause significant injury to the wearer, the protective padding (liner) shall not be loose within the shell, and there shall be no damage to the retention system that prevents normal operation of the fastener.

NOTE This impact velocity represents a drop height of approximately 1,0 metres.