



# SLOVENSKI STANDARD

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### Čelade za konjeniške aktivnosti

Helmets for equestrian activities

Schutzhelme für reiterliche Aktivitäten

Casques de protection pour sports hippiques

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EUROPEAN STANDARD  
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EUROPÄISCHE NORM

**EN 1384**

February 2012

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Supersedes EN 1384:1996

English Version

## Helmets for equestrian activities

Casques de protection pour sports hippiques

Schutzhelme für reiterliche Aktivitäten

This European Standard was approved by CEN on 17 December 2011.

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## Foreword

This document (EN 1384:2012) 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of an identical text or by endorsement, at the latest by August 2012, and conflicting national standards shall be withdrawn at the latest by August 2012.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 1384:1996.

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.

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.

## 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.

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## EN 1384:2012 (E)

## 1 Scope

This European Standard specifies requirement for protective helmets that can have a peak, for people involved in equestrian activities.

It gives safety requirements that include methods of test and levels of performance for shock absorption, for resistance to penetration and for the strength and effectiveness of the retention system and the deflection of a peak if fitted.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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*

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

## 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

### 3.2

**protective padding (liner)**

padding material provided to absorb impact energy

### 3.3

**comfort padding or size padding**

padding material provided to ensure comfortable and correct fit

### 3.4

**cradle**

headband or other head fitting and those internal parts of the helmet other than the padding, which are in contact with the head

### 3.5

**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

### 3.6

**draw-lace**

lace used by a wearer for making adjustments to the fit of the cradle on the head

### 3.7

**chin strap**

part of the retention system consisting of a strap that passes under the wearer's jaw to keep the helmet in position



**3.8****chin cup**

cup mounted on the retention system to locate the strap on the point of the wearer's chin

**3.9****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

Note 1 to entry Different sizes of the same design do not constitute different helmet types.

**3.10****peak**

extension from the basic form of the helmet above the eyes

**3.11****area of protection**

minimum area of the headform covered by the protective padding (liner)

**4 Construction****4.1 General**

The helmet may be constructed either with or without a shell, and with or without means of ventilation. If a shell is used, then protective padding 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 at 12 mm from the edge of the area of protection, shall not be less than the minimum thickness of the protective padding (liner) in the test area as defined in 6.1

**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.

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.

**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 button on the top of the helmet and a peak.

**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.

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The fastening and adjusting devices shall have no sharp edges.

NOTE 1 It is recommended that the part of the device intended to be operated by the wearer to cause the device to open is coloured orange or red.

NOTE 2 It is permissible for the system to include padding or other means of enhancing comfort to the wearer.

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

## 4.5 Headforms

The headforms shown in Table 1 shall be used for helmet sizing, extent of protection, retention effectiveness and retention strength.

NOTE Table 1 also gives the EN 960:1994 equivalent letter codes to the EN 960:2006 size designations for headforms with similar nominal dimensions. These are as given in EN 960:2006, Annex C. The EN 960:2006 size designation approximates to the circumference of the headform at the reference plane, in mm.

**Table 1 — Headforms for sizing, extent of protection, retention effectiveness and retention strength**

Circumference of headform in mm	
Size designation (EN 960:1994 equivalent)	Extent of protection, retention effectiveness and retention strength (mm)
495 (A)	495
505 (B)	495
515 (C)	515
525 (D)	515
535 (E)	535
545 (F)	535
555 (G)	555
575 (J)	575
585 (K)	585
595 (L)	585
605 (M)	605
615 (N)	605
625 (O)	625
635 (P)	625
645 (Q)	645

## 5 Performance requirement

### 5.1 Shock absorption

When tested by the method in 6.4, 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 and the retention system shall remain fastened.

### 5.2 Penetration

When tested by the method described in 6.5, the point of the striker shall not leave visible indentation on the test block.

### 5.3 Retention system strength

When tested by the method described in 6.6, using a drop height of  $(250 \pm 5)$  mm between the facing surfaces of the drop-weight and anvil, the dynamic extension of the retention system, including slippage of the buckle, as measured by displacement of the simulated chin, shall not exceed 35 mm and the residual extension, with the drop-weight at rest on the anvil, shall not exceed 25 mm. Without load on the system any damage to the retention system shall still permit release of the buckle.

### 5.4 Retention system effectiveness

When the helmet is fitted to an appropriate size headform and is subjected to the test described in 6.7, the helmet shall remain on the headform.

### 5.5 Peak deflection

Where the helmet has a peak, when the peak is tested by the method described in 6.8, the deflection at the lateral mid-point of the front edge of the peak shall be greater than 6,0 mm.

## 6 Testing

### 6.1 Assessment of extent of the area of protection and marking of test area

Completely slacken the draw-laces if fitted. Place the helmet on a headform of appropriate size, and apply a vertical load of 50 N in order to stabilize the helmet on the headform. Unless the normal wearing position is clearly specified by the manufacturer, position the helmet so that the lowest lateral mid-point at the front of the protective padding (liner) is no lower than the mid-point between the reference plane and the AA' plane, and not above the AA' plane.

NOTE In the case of the pony rider's style of helmets, the underside of the peak adjacent to the protective padding (liner) is considered to be the base of the shell.

Record the distance from the basic plane to the lowest lateral mid-point at the front of the protective padding (liner), for all consumer sizes on each helmet type.

The helmet is marked up as follows:

- a) a horizontal line at the level of the AA' plane of the headform;
- b) points  $F_1$  and  $F_2$  which are the sideways horizontal projection of the headform point F on to the outer surface of the helmet;
- c) a front point R on the projected longitudinal vertical plane of the headform and 30 mm above the AA' plane;
- d) draw a line around the helmet joining points  $F_1$ ,  $F_2$  and R.

The area of test extends down to the  $RF_1F_2$  line and the area of protection shall extend down to and include both the area above the AA' plane as marked in a) and the area above the  $RF_1F_2$  line as marked in d). An example of a typical helmet is shown in Figure 1.