SLOVENSKI STANDARD
SIST EN 1385:2012

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Čelade za kanuiste in športe na divjih vodah

Helmets for canoeing and white water sports

Helme für den Kanu- und Wildwassersport

Casques utilisés dans la pratique du canoë-kayak et des sports en eau vive

Ta slovenski standard je istoveten z: EN 1385:2012

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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EUROPEAN STANDARD

NORME EUROPÉENNE

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EN 1385

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ICS 13.340.20

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English Version

Helmets for canoeing and white water sports

Casques utilisés dans la pratique du canoë-kayak et des sports en eau vive

Helme für den Kanu- und Wildwassersport

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

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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 CEN-CENELEC Management Centre 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 document (EN 1385:2012) 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of an identical text or by endorsement, at the latest by August 2012, and conflicting national standards shall be withdrawn at the latest by August 2012.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 1385:1997.

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 most common head injury in canoeing and white water sports happens when a person strikes an underwater object after capsizing. Under these circumstances it is extremely unlikely that the speed of impact will be greater than 18 km/h (5 m/s) because this is the highest recorded rate of flow in a white water river. The most common site of injury is the frontal or forehead area or the side of the eye socket.

To achieve the performance of which the helmet is capable, and to ensure stability on the head, it needs to be as close fitting as possible consistent with comfort. The helmet needs to be securely fastened on to the head, and any chin strap has to be under tension at all times.

The protection given by a helmet depends on the circumstances of the accident and wearing a helmet does not 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.

This European Standard includes the International Canoe Federation classification of risks.

1 Scope

This European Standard specifies requirements for helmets for canoeing and white water sports for use in waters of classes 1 to 4 as classified by Clause 4. The levels of protection recognise that most fatalities in canoeing and white water sports result from drowning after concussion and not from brain damage.

This European Standard is not intended to apply to helmets for use in extreme white water situations such as those where the jumping of high waterfalls is undertaken, because the need for impact absorption for such a helmet, and the area of the head to be protected, are greater than those for most canoeing and white water sports. The standard applies to helmets with and without holes in the shell.

NOTE This European Standard does not provide performance requirements for visors, chin-guards or face-guards.

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
canoeing
normal use of a canoe or of a kayak, in white water of classes 1 to 4 classified in accordance with Clause 4

3.2
white water sports
non-powered sporting activities carried out in and/or on moving water as defined by classes 1 to 4 in accordance with Clause 4

3.3
helmet
headwear that is intended to protect the wearer's head from concussion

3.4
shell
material that provides the general outer form of the helmet

3.5
protective padding
lining material used to either absorb impact energy or improve the wearer's comfort

3.6
retention system
entire assembly of components that prevent the helmet coming off the head

3.7
chin strap
strap passing under the wearer's lower jaw that is intended to prevent the helmet coming off the head

3.8
harness
assembly of headband and suspension designed to keep the helmet on the head, and to absorb some kinetic energy

3.9
headband
horizontal band of material that is adjustable to fit the circumference of the wearer's head above the eyes

3.10
suspension
means of resting the helmet on the upper parts of the head

3.11
headform
rigid object designed to simulate a human head for use in testing helmets

3.12
basic plane of the human head
longitudinal plane which passes through the lower level of the eye orbits and the upper level of the external opening of the ear canals

3.13
basic plane of a headform
plane relative to the headform that corresponds to the basic plane of the human head

3.14
reference plane
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

4 White water classification of rivers

NOTE 1 This classification is produced by the International Canoe Federation.

Class 1 Not difficult. Regular current, small waves and riffles, occasional small rapids; pebble banks, no or few obstructions.

Class 2 Moderately difficult. Clear and wide passages; irregular current, rapids bigger waves, easy eddies, stopper and whirlpools; simple obstructions in the passage, small ledges.

Class 3 Difficult. Course not always easily to recognize. High and irregular waves, long rapids, stopper, boils and whirlpools; occasional boulders, drops and various obstructions in the passage.

Class 4 Very difficult. Course difficult to recognize, inspection from shore is advised; big hydraulics, keepers and boils; staggered boulders in main stream, ledges with keepers.

Class 5 Exceedingly difficult. Inspection from shore is mandatory; extreme hydraulics, keepers and boils; narrow in the only line of passage, high drops in cascades with difficult entrances and/or exits.

Class 6 The absolute limit of difficulty. Usually considered unrunnable. All previous mentioned difficulties increased to the limit of practicability. Attempts at certain water levels imply a high risk to life.

NOTE 2 Helmets for use in water classes 5 and 6 are outside the scope of this European Standard. It is expected that these helmets will have performance requirements in excess of this European Standard.

5 Construction

5.1 Materials

The mechanical properties of the materials used in the manufacture of the helmet should not deteriorate significantly during the period of normal use, due to influences such as exposure to sun, to temperature changes or to fresh or salt water. Metal parts used to fasten the chin strap and/or a suspension cradle to the shell, should be protected from or resistant to corrosion. The materials forming the parts of the helmet coming into contact with the skin, should not deteriorate in strength significantly due to contact with sweat and materials which are known to cause skin disorders shall not be used. The thread used for stitching on webbing should be resistant to rotting.

5.2 Extent of shell

When the helmet is placed on a headform of size designation given in Table 1, and the chin strap is secured, the shell, including any holes, shall cover all parts of the headform above the lines ACDF shown in Figure 1 a) and Figure 1 b), except that there may be cut-outs on each side of the helmet to expose the ears for hearing purposes. The dimension “Y” (see Figure 1) for the headforms in Table 1 shall be taken as given in EN 960:2006, Table 1. The point C for each headform (Figure 1 a) and Figure 1 b)) is the midpoint of A–Z and the point D is vertically beneath it on the reference plane.

NOTE Table 1 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 — Sizes of headforms

Size designation (circumference of headform at reference plane, mm)	Code letter(EN 960:1994)
495	A
535	E
575	J
605	M
625	O

5.3 Holes

The shell may be pierced by holes that allow ventilation or the draining of water.

5.4 Projections

Rivet heads shall be rounded and shall not project more than 2 mm beyond the outer surface of the shell. All edges of the shell shall be smooth and rounded to a radius of not less than 1 mm. Any rigid internal projection shall be covered with protective padding.

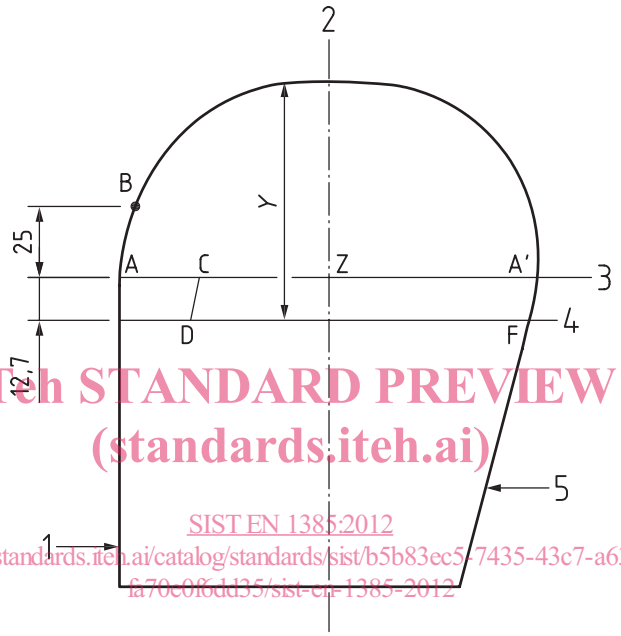
5.5 Retention system

The width of any chin strap shall be not less than 15 mm. The chin strap shall be fitted with a device to adjust and maintain tension in the strap, and shall not include a chin cup.

5.6 Face guards and visors

If the helmet is fitted with means for attaching a face guard or visor then the means of attachment shall not reduce the degree of protection of the helmet.

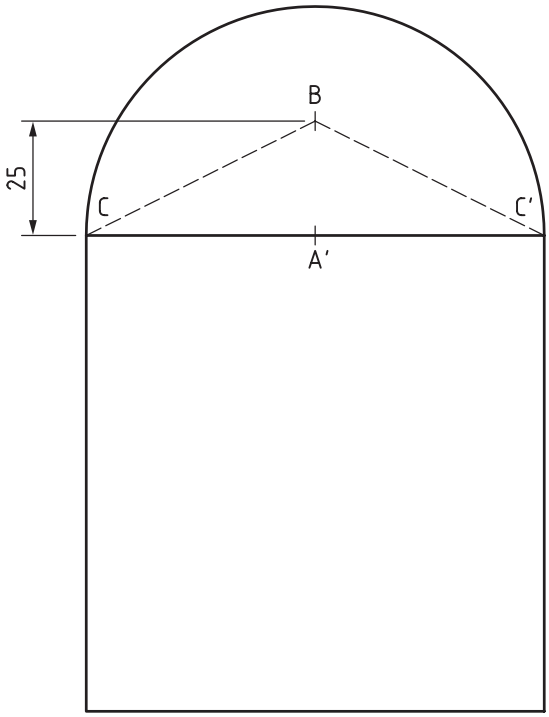
Dimensions in millimetres



Key

1 front
2 central vertical axis
3 AA^{I} plane
4 reference plane
5 rear

a) Section of headform showing positions of planes, lines and points



b) Figure 1 a) through 90°

Figure 1 — Sections of headform

6 Performance requirements

6.1 Impact protection

Helmets shall be capable of withstanding an impact of not less than 15 J.

The deceleration of the headform shall not exceed 250 gn where gn is an acceleration of 9,81 m/s^2.

Testing shall be in accordance with 7.6. The helmet shall be capable of conforming to these requirements regardless of which conditioning procedure in 7.5 has been chosen. A helmet that has been subjected to the procedure in 7.6 shall not be subjected to it a second time.

NOTE This implies that in order to use all four conditioning procedures, a set of at least four helmets is needed.

6.2 Retention system strength

When the retention system is tested by the method described in 7.7 the maximum dynamic extension shall not exceed 25 mm.

6.3 Retention system effectiveness

When the helmet is tested by the method in 7.8, the front edge of the helmet shall not move upwards by more than 80 mm.