



# SLOVENSKI STANDARD SIST EN 812:2012

01-julij-2012

Nadomešča:

SIST EN 812:1998

SIST EN 812:1998/A1:2002

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## Lahke industrijske čelade za varovanje pred udarci

Industrial bump caps

Industrie-Anstoßkappen

Casquettes anti-heurt pour l'industrie

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### ICS:

13.340.20 Varovalna oprema za glavo Head protective equipment

**SIST EN 812:2012**

**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 812**

February 2012

ICS 13.340.20

Supersedes EN 812:1997

English Version

## Industrial bump caps

Casquettes anti-heurt pour l'industrie

Industrie-Anstoßkappen

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.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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**EN 812:2012 (E)****Foreword**

This document (EN 812:2012) has been prepared by Technical Committee CEN/TC "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of an identical text or by endorsement, at the latest by August 2012, and conflicting national standards shall be withdrawn at the latest by August 2012.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 812:1997.

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 C 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.

## 1 Scope

This European Standard specifies physical and performance requirements, methods of test and marking requirements for industrial bump caps.

Industrial bump caps are intended to provide protection to the wearer against the effects of striking his head against hard, stationary objects with sufficient severity to cause laceration or other superficial injuries. They are not intended to provide protection against the effects of falling or thrown objects, or moving or suspended loads.

NOTE An industrial bump cap should not be confused with an industrial safety helmet, as specified in EN 397.

## 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*

ISO 6487:2002, *Road vehicles — Measurement techniques in impact tests — Instrumentation*

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## 3 Terms and definitions (standards.iteh.ai)

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

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**3.1 industrial bump cap** <https://standards.iteh.ai/catalog/standards/sist/b8f40a7c-77b5-4f6d-ad52-ce9d73b859ca/sist-en-812-2012>

headgear, hereinafter referred to as a “bump cap”, intended to protect the wearer’s head against injury caused by striking the head against hard, stationary objects

NOTE It may consist of the items defined in 3.2, 3.3, 3.4, 3.5 and 3.6.

### 3.2 shell

hard, smoothly finished material that may provide the general outer form of the bump cap

NOTE It may be fitted with external coverings, which may provide a means of maintaining the bump cap on the head.

### 3.3 harness

#### 3.3.1 assembly

complete assembly that may provide a means:

- a) of maintaining the bump cap in position on the head;
- b) of absorbing kinetic energy during an impact.

NOTE A harness may include the items defined in 3.3.2, 3.3.3, 3.3.4 and 3.3.5.

**EN 812:2012 (E)****3.3.2****headband**

part of the harness, if fitted, completely or partly surrounding the head above the eyes at approximately the largest horizontal circumference of the head

NOTE The headband may include a nape strap.

**3.3.3****nape strap**

adjustable or self-adjusting strap that fits behind the head below the plane of the headband

NOTE A nape strap may be an integral part of the headband, and may be elasticated.

**3.3.4****cradle**

assembly of parts of the harness, if fitted, in contact with the head, excluding the headband and nape strap, if fitted

NOTE The cradle may be either fixed or adjustable.

**3.3.5****comfort band or sweatband**

accessory to cover at least the inner front surface of the headband, if fitted, to improve wearer comfort

**3.4****ventilation holes**

holes provided in the shell, and/or external coverings, which can allow circulation of air inside the bump cap

**3.5****chin strap**

strap which fits under the chin to help secure the bump cap on the head

**3.6****chin strap anchorages**

means by which the material of the chin strap is attached to the bump cap

NOTE This includes, for example:

- the component(s) fitted to the ends of the chin strap material for this purpose;
- that part of the bump cap shell or of the headband where the chin strap is attached.

**3.7****bump cap accessories**

any additional parts for special purposes

NOTE Examples of accessories are chin strap, neck protector, nape strap, external coverings.

**3.8****wearing height**

vertical distance from the lower edge of the headband, if fitted, (or from the lower edge of the bump cap if there is no headband) to the highest point of the headform on which the bump cap is mounted, measured either at the front (midway between the sides of the headform) and at the side (midway between the front and back of the headform) whichever gives the greater distance



## 4 Physical requirements

### 4.1 Materials and construction

The bump cap may consist of a smooth shell, which may be enclosed by an outer covering. The bump cap shall incorporate means to absorb the energy of an impact.

NOTE Recommendations for materials and construction of bump caps are given in Annex A.

For those parts of the bump cap that come into contact with the skin, materials which are known to be likely to cause skin irritation or any adverse effect on health shall not be used.

There shall be no sharp edge, roughness or projection on any part of the bump cap which is in contact, or potential contact, with the wearer when the bump cap is worn, such as is likely to cause injury to the wearer.

Any part of the bump cap which can be adjusted, or removed by the wearer for the purpose of replacement, shall be so designed and manufactured as to facilitate adjustment, removal and attachment without the use of tools.

Any adjustment system incorporated within the bump cap shall be so designed and manufactured as not to become incorrectly adjusted without the wearer's knowledge under the foreseeable conditions of use.

### 4.2 Cradle

If the bump cap is fitted with a cradle incorporating textile tapes, their individual widths shall be not less than 15 mm, and the total of the widths of the tapes radiating from their intersection shall be not less than 72 mm.

NOTE Further reference to textile tapes is made in Annex A.

### 4.3 Comfort band or sweatband

If a sweatband is provided, it shall cover the inner front surface of the headband, if fitted, for a length of not less than 100 mm each side of the centre of the forehead. The length shall be measured with a flexible measure along a line  $(10 \pm 1)$  mm above the lower edge of the headband. It shall have a width not less than that of the headband over the length which it covers.

NOTE Recommendations regarding characteristics of the sweatband, if fitted, are given in Annex A.

### 4.4 Retention

Means shall be provided to secure the bump cap on the wearer's head. Any one of the following is deemed to satisfy this requirement:

- a) external coverings to the shell which incorporate an elasticated rear section, passing below the plane of the headband;
- b) a nape strap;
- c) a chin strap or means of attaching one.

### 4.5 Headband/nape strap

The length of the headband or the nape strap, if fitted, shall be adjustable in increments of not more than 5 mm.

**EN 812:2012 (E)****4.6 Chin strap**

Unless specific provision is made for the bump cap to be retained on the head by other means, the bump cap or the harness shall be fitted with a chin strap or with means of attaching one. Any chin strap supplied with the bump cap shall be not less than 10 mm wide when un-tensioned and shall be attached either to the shell or to the headband, if fitted.

**4.7 Ventilation**

If the bump cap is provided with holes for ventilation purposes, the total area of such holes shall be not less than 150 mm<sup>2</sup> and not more than 450 mm<sup>2</sup>.

NOTE 1 Means of closing the ventilation holes may be provided.

NOTE 2 If such means are provided, the holes should be opened to the maximum extent when the above measurement is performed.

NOTE 3 Recommendations regarding design for ventilation are given in Annex A.

**4.8 Accessories**

For the fixing of bump cap accessories, specified in the information accompanying the bump cap in accordance with 7.2.3, the required fixing devices, or appropriate holes in the bump cap, shall be provided by the bump cap manufacturer.

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**5 Performance requirements****5.1 Mandatory requirements**

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**5.1.1 Impact protection**

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When a bump cap is tested by the method given in 6.5, the force transmitted to the headform shall not exceed 15,0 kN. This requirement shall be satisfied by bump caps treated in accordance with the appropriate conditioning processes given in 6.2, as specified by the list of tests given in 6.1.

**5.1.2 Resistance to penetration**

When a bump cap is tested by the method given in 6.6, the point of the striker shall not contact the surface of the headform. This requirement shall be satisfied by bump caps treated in accordance with the appropriate conditioning processes given in 6.2, as specified by the list of tests given in 6.1.

**5.1.3 Chin strap anchorages**

When a bump cap is fitted with chin strap anchorages, these shall be tested in accordance with 6.7. The artificial jaw shall be released at a force of not less than 150 N and not more than 250 N, due to failure only of the anchorages.

**5.2 Optional requirements****5.2.1 Very low temperature (–20 °C or –30 °C)**

When tested for impact protection by the method given in 6.5, the requirement of 5.1.1 shall be satisfied by one bump cap which has been conditioned in accordance with 6.2.

When tested for resistance to penetration by the method given in 6.6, the requirement of 5.1.2 shall be satisfied by a second bump cap, which has been conditioned in accordance with 6.2.

Bump caps claimed to meet these requirements shall state this fact on the label attached to the bump cap, in accordance with 7.2.2.

### 5.2.2 Resistance to flame

When tested by the method given in 6.8, the materials of the shell and/or external coverings shall not burn with the emission of flame when a period of 5 s has elapsed after removal of the flame.

Bump caps claimed to meet this requirement shall state this fact on the label attached to the bump cap, in accordance with 7.2.2.

### 5.2.3 Electrical properties

When tested by all three of the methods given in 6.9, the leakage current shall not exceed 1,2 mA.

NOTE 1 This requirement is intended to provide protection to the wearer against short term, accidental contact with live electrical conductors at voltages up to 440 V (a.c.).

NOTE 2 Test 1 is intended to simulate closely the in-use situation, that is, the leakage current to the wearer via a live conductor touching the shell.

NOTE 3 Test 2 is dependent only upon the transverse resistance of the complete shell (thickness). This effectively precludes the use of a metal shell, and of metal fasteners or ventilation holes passing through the shell.

NOTE 4 Test 3 is dependent only upon the surface resistance of the shell, and effectively precludes the use of shells which have a conductive surface (e.g. metal electro-plating). This test was deemed to be necessary in order to obviate the danger to the wearer should he try to remove a bump cap whose shell was in contact with a live conductor.

Bump caps claimed to meet this requirement for all three tests shall state this fact on the label attached to the bump cap, in accordance with 7.2.2.

## 6 Test requirements

### 6.1 Samples

Bump caps shall be submitted for testing in the condition in which they are offered for sale, including any requisite holes and other means of attachment of any accessories specified by the bump cap manufacturer.

No bump cap that has been subjected to testing shall be offered for sale.

The minimum number of samples and conditions required for one set of tests is as follows.

Mandatory tests:

- 1 bump cap for impact protection test at  $-10\text{ }^{\circ}\text{C}$ ;
- 1 bump cap for impact protection test, following water immersion;
- 1 bump cap for impact protection test at  $+50\text{ }^{\circ}\text{C}$ ;
- 1 bump cap for impact protection test, following artificial ageing;
- 1 bump cap for resistance to penetration test at  $-10\text{ }^{\circ}\text{C}$ ;