SLOVENSKI STANDARD
SIST EN 50365:2002

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Elektroizolacijske ļ elade za delo na nizkonapetostnih inġtalacijah

Electrically insulating helmets for use on low voltage installations

Elektrisch isolierende Helme für Arbeiten an Niederspannungsanlagen

Casques électriquement isolants pour utilisation sur installations à basse tension

Ta slovenski standard je istoveten z: **EN 50365:2002**

ICS:

13.260	Varstvo pred elektriļ nim udarom. Delo pod napetostjo	Protection against electric shock. Live working
13.340.20	Varovalna oprema za glavo	Head protective equipment

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EUROPEAN STANDARD **EN 50365**

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English version

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Elektrisch isolierende Helme für Arbeiten an Niederspannungsanlagen

This European Standard was approved by CENELEC on 2001-07-01. CENELEC 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 Central Secretariat or to any CENELEC 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CENELEC
European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 78, Equipment and tools for live working.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50365 on 2001-07-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2002-11-01

- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2004-08-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annexes A, B, C and ZA are normative and annex D is informative.

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 89/686/EEC.

Contents

1 Scope

This standard is applicable to electrically insulating helmets used for working live or close to live parts on installations not exceeding 1 000 V a.c. or 1 500 V d.c.

These helmets, when used in conjunction with other electrically insulating protective equipment prevent dangerous current from passing through persons via their head.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 397:1995 + A1:2000	Industrial safety helmets
EN 443:1997	Helmets for fire fighters
EN 960:1994 + A1:1998	Headforms for use in the testing of protective helmets
EN 60060-2:1994 + A11:1998	High-voltage test techniques -- Part 2: Measuring systems (IEC 60062-2:1994)
EN 60529:1991 + A1:2000	Degrees of protection provided by enclosures (IP Code)
EN/ISO 9000 (Series)	Quality management and quality assurance standards
HD 437 S1:1984	Standard conditions for use prior to and during the testing of solid electrical insulating materials (IEC 60212:1971)
HD 588.1 S1:1991	High-voltage test techniques -- Part 1: General definitions and test requirements (IEC 60060-1:1989 + corrigendum March 1990)
IEC 60050-151:2001	International Electrotechnical Vocabulary -- Part 151: Electrical and magnetic devices
IEC 61318:1994	Live working - Guidelines for quality assurance plans
ISO 2859-1:1999	Sampling procedures for inspection by attributes -- Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection
ISO 2859-2:1985	Sampling procedures for inspection by attributes -- Part 2: Sampling plans indexed by limiting quality (LQ) for isolated lot inspection
ISO/DIS 6344-1:1998	Coated abrasives – Grain size analysis -- Part 1: Grain size distribution test

3 Definitions

3.1
electrically insulating helmet
a safety helmet which protects the wearer against electrical shocks by preventing the passage of dangerous current through the body via the head

3.2
type test
a test performed on one or more devices made to a certain design to show that the design meets certain specifications [IEV 151-04-15]

3.3
sampling test
a test performed on a number of devices taken at a random from a batch [IEV 151-04-17]

3.4
acceptance test
a contractual test to prove the customer that the device meets certain conditions of its specification [IEV 151-04-20]

3.5
proof test voltage
a specified value of voltage that is applied to a device, item or component for the time defined under specified conditions to assure that the electrical strength of the insulation is above a specified value

3.6
withstand test voltage
a specified value of voltage that a device, item or component must withstand without flashover, disruptive discharge, puncture or other electric failure when that value of voltage is applied under specified conditions

4 Classification

Helmets used on or near electrical installations shall be classified in

- electrical class 0 for installations with nominal voltage up to 1 000 V a.c. and 1 500 V d.c.

5 Requirements

5.1 General

Insulating helmets shall fulfil the requirements of EN 397 or EN 443.

5.2 Non-electrical requirements

Insulating helmets shall not consist of conductive parts (see 6.2.1).

The design of air-conditioning holes – if any – shall prevent accidental contact with live parts and provide a degree of protection IP3X (see 6.2.2).

5.3 Electrical requirements

Insulating helmet shell shall pass a proof voltage test and a withstand voltage test according to 6.3.

5.4 Marking

5.4.1 The additional marking to those required by appropriate helmet standard shall be the following (see Figure 2):

- symbol (double triangle);
- class;
- serial or batch number.

5.4.2 The marking shall be durable, clearly legible on the bottom of the helmet shell peak and shall not impair its quality.

5.4.3 If a colour code is used, the symbol (double triangle) shall be red.

5.5 Packaging

The type of packaging suitable for transport shall be defined by the manufacturer.

The packaging of each helmet shall have sufficient strength to protect the helmet from damage properly.

The outside of packaging shall be marked with the name of the manufacturer or supplier, classification, size and design.

5.6 Instructions for use

The instruction for use shall contain the information according to Annex B.

6 Tests

6.1 General

Tests are type and sampling tests.

For type tests, three helmet shells shall be used. A type test shall be performed on each helmet.

6.2 Non-electrical tests

6.2.1 Visual inspection and dimensions

The compliance with the requirements of 5.1 and 5.3 shall be checked.

6.2.2 Design of air-conditioning holes

The helmet has to be tested on testing head form type K and D according to EN 960. The testing head forms have to be wrapped up in aluminium foil. An electric circuit in the sense of a continuity check has to be built up between a IP3X testing wire according to EN 60529 and the aluminium foil in order to prove that there is an electric contact between both parts.

Each air-conditioning hole has to be tested by a wire which fulfils the requirements of EN 60529. The wire has to be inserted as deep as possible. Then the wire shall be moved free in all directions.

The test is considered as passed if the wire does not get in contact with the testing head form during the test.

6.3 Electrical tests

6.3.1 General

Electrical type tests shall be performed in a room where temperature is (23 ± 2) °C and (50 ± 5) % relative humidity (see HD 437, standard atmosphere B).

Electrical tests shall only be performed on whole helmet shells.

Tests arrangements, power sources and procedures shall be in accordance with HD 588.1/EN 60060-2.

Type and sampling tests are destructive, therefore tested helmet shells shall be destroyed after the completion of the tests.

6.3.2 Test arrangement

The helmet shell shall be fixed in an appropriated manner (see Figure 1). Then the tank and the inner side of the shell shall be filled with tap water. The vertical clearance value *d* between the helmet shell bram and the level of water shall be the same inside and outside. The clearance value *d* shall be (20 ± 3) mm for the proof voltage test according to 6.3.4 and (40 ± 3) mm for the withstand voltage test according to 6.3.5.

The water inside the helmet shell shall be connected to the high voltage terminal of the supply. The water in the tank outside the helmet shell shall be connected to the ground.

6.3.3 Preconditioning

Helmet shells submitted to test shall be treated preliminary on the internal and external surface with mechanical action by sand paper rougher than P 80 according ISO/DIS 6344-1 in order to remove eventual films of paints or other substances on the surface. The mechanical action shall not damage the underlying material.

In case of helmet shells provided with air-conditioning holes, these holes shall be closed with insulating material.

NOTE Holes can be closed with electrician's putty or two-component adhesive.

Then the helmet shells shall be preconditioned by immersing in tap water for at least (24 ± 0,5) h. Before carrying out the test, the helmet shells shall be wiped off. The test shall not begin later than 5 minutes after removing from the water tank.

6.3.4 Proof voltage test

Each unit shall be submitted to a proof test voltage given in Table 1.

The alternating voltage shall be initially applied at a low value and gradually increased at a constant rate-of rise of approximately 1 000 V/s until the specified voltage level is reached or failure occurs.

For the type and the sampling tests the voltage shall be applied continuously for a duration of not less than 3 minutes.

The test is considered as passed if the specified test voltage is reached and maintained for the specified duration and the proof-test current does not exceed the relevant value specified in Table 1 at any time during the proof voltage test period.