SLOVENSKI STANDARD
SIST EN 50033:1997

01-junij-1997

Električne naprave za potencialno eksplozivne atmosfere - Rudarske naglavne svetilke za uporabo v rudnikih, kjer je možen pojav eksplozivnih plinov

Electrical apparatus for potentially explosive atmospheres - Caplights for mines susceptible to firedamp

Elektrische Betriebsmittel für explosionsgefährdete Bereiche - Kopfleuchten für schlagwettergefährdete Grubenbaue

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Matériel électrique pour atmosphères explosibles - Lampes-chapeau pour les mines grisouteuses

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Ta slovenski standard je istoveten z: **EN 50033:1991**

ICS:

29.260.20	Električni aparati za eksplozivna ozračja	Electrical apparatus for explosive atmospheres
73.100.20	Prezračevalna, klimatizacijska in razsvetljevalna oprema	Ventilation, air-conditioning and illumination equipment

SIST EN 50033:1997 **en**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD | EN 50033

NORME EUROPEENNE

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UDC 621.32-213.34:622.474:614.838.4

Descriptors: Electrical apparatus, potentially explosive atmosphere, explosive atmosphere, explosion proofing, mines susceptible to firedamp, caplight

ENGLISH VERSION

ELECTRICAL APPARATUS FOR POTENTIALLY EXPLOSIVE ATMOSPHERES CAPLIGHTS FOR MINES SUSCEPTIBLE TO FIREDAMP

Matériel électrique pour atmosphères explosibles Lampes-chapeau pour les mines grisouteuses

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Up-to-date list and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

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CENELEC

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

Central Secretariat: rue de Stassart 35, B-1050 Brussels

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Foreword

This European Standard has been prepared by the secretariat of CENELEC technical sub-committee SC 31-4.

The document was submitted to the CENELEC members for formal vote in June 1990 and was approved by CENELEC as EN 50033 on 10 December 1990.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1991-12-01

- latest date of withdrawal of conflicting national standards (dow) 1991-12-01.

For products which have complied with EN 50033:1986 before 1991-12-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1996-12-01.

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Electrical apparatus for potentially explosive atmospheres.

Caplights for mines susceptible to firedamp.

1 Scope

This European Standard prescribes the specific requirements related to the risk of a gas explosion for the construction and testing of caplights for use in mines susceptible to firedamp (electrical apparatus for potentially explosive atmospheres of group I).

These specific requirements are supplemented by the following requirements which apply also to caplights for mines susceptible to firedamp:

- 6.3 "Electrostatic charges of enclosures of plastics material" and 7.1 (permitted light alloys for enclosures) of EN 50014;

- 3.2 "Internal connections", 3.5 "Solid insulating materials" and 3.8 "Internal wiring" of EN 50019.

2 Normative references

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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 revision 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.

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European Standards:

EN 50014:1977 + A1:1979 + A2:1982 + A3:1982 + A4:1982 + A5:1986	Electrical apparatus for potentially explosive atmospheres General requirements
EN 50019:1977 + A1:1979 + A2:1983 + A3:1985 + A4:1989 + A5:1990	Electrical apparatus for potentially explosive atmospheres Increased safety 'e'
EN 50020:1977 + A1:1979 + A2:1985	Electrical apparatus for potentially explosive atmospheres Intrinsic safety 'i'

(NOTE: Cross-references to clauses in EN 50014 and EN 50019 are to edition 1 and similar clauses of current drafts of edition 2.)

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International Publications with references to the corresponding European publications:

IEC Publications		EN/HD
IEC 50(845):1987	International Electrotechnical Vocabulary Chapter 845: Lighting	-
IEC 332-1:1979	Tests on electric cables under fire conditions Part 1: Test on a single vertical insulated wire or cable	HD 405.1 S1:1980
IEC 455-1:1974	Specification for solventless polymerisable resinous compounds used for electrical insulation Part 1: Definitions and general requirements	HD 307.1 S2:1981
IEC 529:1976 + A1:1978 + A2:1983	Classification of degrees of protection provided by enclosures	HD 365 S3:1985
ISO Publications		
ISO 286-1:1988	ISO System of limits and fits Part 1: Basis of tolerances, deviations and fits	-
ISO 4762:1977 + A1:1984	Hexagon socket head cap screws Product grade A	-

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3 Definitions

For the purposes of this European Standard, the definitions of EN 50014 and IEC 50(845) apply and also the following.

3.1 caplight: Apparatus comprising a headpiece, connecting cable and rechargeable secondary cell(s)/battery in a container.

3.2 cell: Assembly of electrodes and electrolyte in an enclosure which constitutes the basic unit of a battery.

3.3 secondary cell or battery: Electrochemical system capable of storing under chemical form the electrical energy received and which can give it back by reconversion.

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3.4 "sealed" cell: Cell which remains closed when it is operated within its design specified limits but permits the escape of gas through either a resetting or a non-resetting pressure release device if the internal pressure exceeds a predetermined value.

3.5 battery: Two or more cells electrically connected and suitable for use as a source of energy.

4 General

The caplight shall be constructed in such a manner that:

- the nominal voltage is not greater than 6 V,
- the value of the current in normal use is not greater than 1,5 A,
- the nominal rating of the lamp is not greater than 6 W,
- the circuit shall behave as if solely resistive; this circuit shall be protected by a fuse in accordance with 6.8.

NOTE. When the caplight battery is also used to supply an other apparatus, the other apparatus should comply with the requirements of one or more of the types of protection listed in EN 50014 and the combination should be assessed as a whole.

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5 Headpiece

5.1 The enclosure of the headpiece of the caplight shall provide protection against the ingress of dust and water of at least degree of protection by enclosure IP 54 (category 2) according to IEC 529 (see 9.2 for the method of test).

5.2 The fastening of the enclosure of the headpiece shall be by a special fastener, in the form of a hexagon socket head cap screw M3, M4 or M5 with a protective shroud or counterbore, complying with the following requirements.

The head and thread of the screw shall be according to ISO 4762

NOTE: The requirements for fasteners relate only to the essential features of the head and thread and the design is otherwise unrestricted, for example fasteners with long dog points are permitted.

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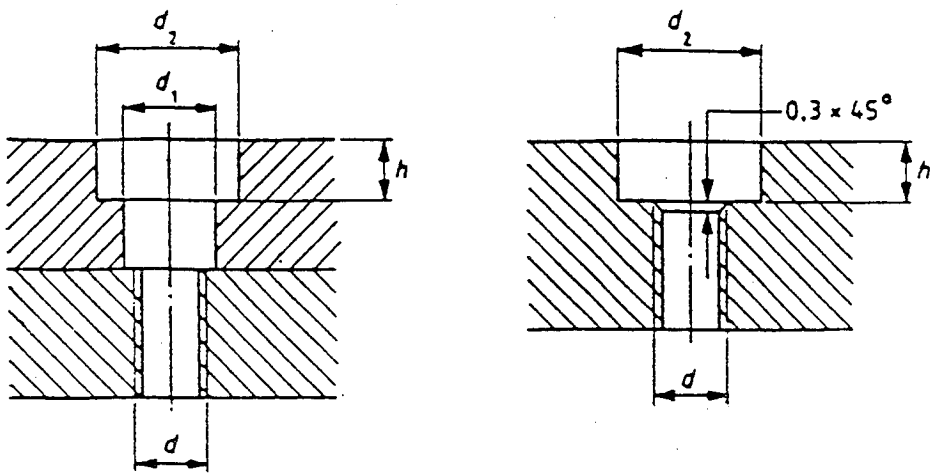

The values of the dimensions of protective shrouds and counterbores in the alternative arrangements shown are listed in Table 1.

NOTE: The sketches show counterbores but the dimensions apply also to protective shrouds.

Table 1 – Fastening of headpiece

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Nominal diameter		Protective shroud or counterbore		
of thread d	of hole d_1* mm	h mm min.	d_2 mm min.	d_2 mm max.
M3	3,5	3	6	8
M4	4,5	4	7	9
M5	5,5	5	9	11
* Tolerance H13 ISO 286-1.				

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5.3 The lamp shall be protected against mechanical damage by a transparent protective disk, which is protected by a raised rim with a height of not less than 2 mm or by a protective grill. The protective grill may be omitted only if the free surface of the protective disk does not exceed 25 cm^2 or if the protective disk withstands the impact test for the protective grill according to 9.3.

The protective disk, protective grill and protective rim required by the previous paragraph shall be removable only after releasing the special fastener according to 5.2.