SLOVENSKI STANDARD
SIST EN IEC 62819:2023

01-julij-2023

Delo pod napetostjo - Ščitniki oči, obraza in glave pred učinki električnega obloka - Zahtevane lastnosti in preskusne metode (IEC 62819:2022)

Live working - Eye, face and head protectors against the effects of electric arc - Performance requirements and test methods (IEC 62819:2022)

Arbeiten unter Spannung - Augen-, Gesichts- und Kopfschutz gegen die Auswirkungen eines Störlichtbogens - Anforderungen und Testmethoden (IEC 62819:2022)

Travaux sous tension - Protecteurs des yeux, du visage et de la tête contre les effets de l'arc électrique - Exigences de performances et méthode d'essai (IEC 62819:2022)

Ta slovenski standard je istoveten z: **EN IEC 62819:2023**

ICS:

13.260	Varstvo pred električnim udarom. Delo pod napetostjo	Protection against electric shock. Live working
13.340.20	Varovalna oprema za glavo	Head protective equipment
29.260.99	Druga električna oprema za delo v posebnih razmerah	Other electrical equipment for working in special conditions

SIST EN IEC 62819:2023 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 62819

May 2023

ICS 13.260; 29.240.99; 29.260.99

English Version

Live working - Eye, face and head protectors against the effects of electric arc - Performance requirements and test methods (IEC 62819:2022)

Travaux sous tension - Protecteurs des yeux, du visage et de la tête contre les effets de l'arc électrique - Exigences de performances et méthode d'essai (IEC 62819:2022)

Arbeiten unter Spannung - Augen-, Gesichts- und Kopfschutz gegen die Auswirkungen eines Störlichtbogens - Anforderungen und Testmethoden (IEC 62819:2022)

This European Standard was approved by CENELEC on 2022-12-21. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 78/1397/FDIS, future edition 1 of IEC 62819, prepared by IEC/TC 78 "Live working" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62819:2023.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2023-11-26
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-05-26

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a Standardization Request given to CENELEC by the European Commission and the European Free Trade Association.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 62819:2022 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 60825-1:2014	NOTE	Approved as EN 60825-1:2014 (not modified) + A11:2021
IEC 60895	NOTE	Approved as EN IEC 60895
ISO 4007:2018	NOTE	Approved as EN ISO 4007:2018 (not modified)
ISO 4869-1:2018	NOTE	Approved as EN ISO 4869-1:2018 (not modified)
ISO 8980-1:2017	NOTE	Approved as EN ISO 8980-1:2017 (not modified)
ISO 8980-2:2017	NOTE	Approved as EN ISO 8980-2:2017 (not modified)
ISO/TR 11610:2004	NOTE	Approved as CEN ISO/TR 11610:2004 (not modified)
ISO 19011:2018	NOTE	Approved as EN ISO 19011:2018 (not modified)
ISO 21987:2017	NOTE	Approved as EN ISO 21987:2017 (not modified)
ISO 18526-1:2020	NOTE	Approved as EN ISO 18526-1:2020 (not modified)
ISO 18526-4:2020	NOTE	Approved as EN ISO 18526-4:2020 (not modified)

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60417	-	Graphical symbols for use on equipment. Index, survey and compilation of the single sheets.	-	-
IEC 61318	2021	Live working - Methods for assessment of defects and verification of performance applicable to tools, devices and equipment	EN IEC 61318	2021
IEC 61477	2009	Live working - Minimum requirements for the utilization of tools, devices and equipment	EN 61477	2009
-	-		+ corrigendum Mar.	2010
IEC 61482-1-1	2019	Live working - Protective clothing against the thermal hazards of an electric arc - Part 1-1: Test methods - Method 1: Determination of the arc rating (ELIM, ATPV and/or EBT) of clothing materials and of protective clothing using an open arc	EN IEC 61482-1-1	2019
IEC 61482-1-2	2014	Live working - Protective clothing against the thermal hazards of an electric arc - Part 1-2: Test methods - Method 2: Determination of arc protection class of material and clothing by using a constrained and directed arc (box test)	EN 61482-1-2	2014
IEC 61482-2 (mod)	2018	Live working - Protective clothing against the thermal hazards of an electric arc - Part 2: Requirements	EN 61482-2	2020
ISO 3758	2012	Textiles - Care labelling code using symbols	EN ISO 3758	2012
ISO 15025	2016	Protective clothing - Protection against flame - Method of test for limited flame spread	EN ISO 15025	2016

Publication	Year	Title	EN/HD	Year
ISO 16321-1	2021	Eye and face protection for occupational use - Part 1: General requirements	EN ISO 16321-1	2022
ISO 16321-2	2021	Eye and face protection for occupational use - Part 2: Additional requirements for protectors used during welding and related techniques	EN ISO 16321-2	2021
ISO 16976	series	Respiratory protective devices - Human factors	-	-
ISO 18526-2	2020	Eye and face protection - Test methods - Part 2: Physical optical properties	EN ISO 18526-2	2020
ISO 18526-3	2020	Eye and face protection - Test methods - Part 3: Physical and mechanical properties	EN ISO 18526-3	2020

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Live working – Eye, face and head protectors against the effects of electric arc – Performance requirements and test methods

Travaux sous tension – Protecteurs des yeux, du visage et de la tête contre les effets de l'arc électrique – Exigences de performances et méthodes d'essai

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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LIVE WORKING – EYE, FACE AND HEAD PROTECTORS AGAINST THE EFFECTS OF ELECTRIC ARC – PERFORMANCE REQUIREMENTS AND TEST METHODS

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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IEC 62819 has been prepared by IEC technical committee 78: Live working. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
78/1397/FDIS	78/1399/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

Terms defined in Clause 3 are given in *italic* print throughout this document.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This document has been prepared in accordance with the requirements of IEC 61477 where applicable.

The product covered by this document can have an impact on the environment during some or all stages of its life cycle. These impacts can range from slight to significant, be short-term or long-term, and occur at the global, regional or local level.

This document does not include requirements and test provisions for the manufacturers of the product or recommendations to the users of the product for environmental improvement. However, all parties intervening in its design, manufacture, packaging, distribution, use, maintenance, repair, reuse, recovery and disposal are invited to take account of environmental considerations.

LIVE WORKING – EYE, FACE AND HEAD PROTECTORS AGAINST THE EFFECTS OF ELECTRIC ARC – PERFORMANCE REQUIREMENTS AND TEST METHODS

1 Scope

This document is applicable to eye, face and head *protector*s used in work where there is a risk of exposure to an *electric arc* hazard.

Such *protector*s consist of one or several *devices* (e.g. *hood*, *goggle*s, *balaclava*s, *face shields*, *helmet*s, etc.), which might need to be combined together in order to give protection to eye, face and head for the intended use.

This document covers the performance requirements for *protector*s and single protective *devices* considering thermal, optical and mechanical hazards of an *electric arc*.

Because of the limitations of test apparatus at very high energy arcs, no *arc rating* above 4 100 kJ/m^2 (100 cal/cm^2) can be assigned to *protector*s.

This document does not cover protection against electric shock, noise, the consequences of physical and mental shock and the toxic influences caused by an *electric arc*.

This document does not cover *protector*s for work intentionally using an *electric arc*, e.g. arc welding, plasma torch.

This document does not cover face-screens for the reduction of an electric field inside conductive clothing in accordance with IEC 60895.

Any other claims of the manufacturer for protection against other hazards to eye or face (e.g. welding radiation, hazards occurring during fire-fighting) are outside the scope of the document.

Products designed and manufactured in accordance with this document contribute to the safety of the users provided they are used by skilled persons, in accordance with safe methods of work and the instructions for use.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 60417, *Graphical symbols for use on equipment* (available at http://www.graphical-symbols.info/equipment)

IEC 61318:2021, *Live working – Methods for assessment of defects and verification of performance applicable to tools, devices and equipment*

IEC 61477:2009, *Live working – Minimum requirements for the utilization of tools, devices and equipment*

IEC 61482-1-1:2019, *Live working – Protective clothing against the thermal hazards of an electric arc – Part 1-1: Test methods – Method 1: Determination of the arc rating (ELIM, ATPV and/or EBT) of clothing materials and of protective clothing using an open arc*

IEC 61482-1-2:2014*, Live working – Protective clothing against the thermal hazards of an electric arc – Part 1-2: Test methods – Method 2: Determination of arc protection class of material and clothing by using a constrained and directed arc (box test)*

IEC 61482-2:2018*, Live working – Protective clothing against the thermal hazards of an electric arc – Part 2: Requirements*

ISO 3758:2012, *Textiles – Care labelling code using symbols*

ISO 15025:2016, *Protective clothing – Protection against flame – Method of test for limited flame spread*

ISO 16321-1:2021, *Eye and face protection for occupational use – Part 1: General requirements*

ISO 16321-2:2021, *Eye and face protection for occupational use – Part 2: Additional requirements for protectors used during welding and related techniques*

ISO 16976 (all parts), *Respiratory protective devices – Human factors*

ISO 18526-2:2020, *Eye and face protection – Test methods – Part 2: Physical optical properties*

ISO 18526-3:2020, *Eye and face protection – Test methods – Part 3: Physical and mechanical properties*

3 Terms, definitions and symbols

3.1 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at https://www.iso.org/obp
- IEC Electropedia: available at http://www.electropedia.org/

3.1.1
arc protection class
APC
<*electric arc* testing> class of *arc thermal protection* of a product tested in accordance with the box test method

Note 1 to entry: The *arc protection class* is characterized by the test energy level of arc exposure (arc energy and *incident energy*).

Note 2 to entry: The box test method defines two *arc protection class*es APC 1 and APC 2.

[SOURCE: IEC 60050-651:2022,651-27-03]

3.1.2
arc rating
<*electric arc* testing> quantity, attributed to a product, that describes the protective performance when tested in accordance with the open arc test

Note 1 to entry: The *arc rating* can be the *arc thermal performance value* (ATPV), the *breakopen threshold energy* (EBT) or the *incident energy limit* (ELIM).

Note 2 to entry: The *arc rating* values are expressed in kJ/m^2 (cal/cm^2).

[SOURCE: IEC 60050-651:2022, 651-27-04]

3.1.3
arc thermal performance value
ATPV
<*electric arc* testing> quantity of *incident energy* attributed to a product that describes its properties of attenuating the thermal effect of energy generated by an open arc

Note 1 to entry: The ATPV of a product is calculated in principle using logistic regression analysis applied to the data points obtained from testing a sufficiently large set of test specimens. It is the value of *incident energy* at which the heat transfer through the test specimens is enough to reach the Stoll criteria with 50 % probability.

Note 2 to entry: However, the ATPV attributed to a product in accordance with this document is either equal to or lower than the ATPV of the product calculated by taking only the Stoll criteria into account, depending on whether the tested specimen(s) fulfil also additional visual design and performance assessment criteria.

Note 3 to entry: Depending on further visual design and performance assessment criteria, the calculation of the value of the ATPV attributed to a product can be based on a smaller set of test specimens than needed for the determination of the ATPV by logistic regression analysis.

[SOURCE: IEC 60050-651:2022, 651-27-05, modified – The notes to entry have been added.]

3.1.4
arc thermal protection
<*electric arc* testing> degree of thermal protection offered against an *electric arc* under specific arc testing conditions indicated by either an *arc rating* or an *arc protection class*

[SOURCE: IEC 60050-651:2022, 651-27-06]

3.1.5
auto darkening filter
optical filter which varies the transmittance in the visible region of the spectrum depending on the presence of light emitted by an *electric arc*

Note 1 to entry: An *auto darkening filter* combines a *filter* with automatically adapting light transmittance with a passive UV and a passive IR *filter*. It varies the transmittance in the visible region of the spectrum, depending on the presence of light emitted by an *electric arc*. The luminous transmittance of the *auto darkening filter* has an initial high value (light state). After *ignition* of the arc, within a certain switching time, the luminous transmittance of the *filte*r changes to a low value (dark state). *Auto darkening filter*s include a (clear or tinted) cover plate and a (clear or tinted) inside plate.

Note 2 to entry: Luminous transmittance (shade), switching time, variations of luminous transmittance (homogeneity) and angle dependence are the main specific characteristics of an *auto darkening filter*.

3.1.6
balaclava
one-piece garment designed to fit closely over the entire head and to extend downwards to cover the neck, but leaving the area of the eyes and at most the area of the eyes, nose and mouth uncovered

[SOURCE: ISO/TR 11610:2004, 3.22, modified – The area of the head not covered has been specified.]