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Arbete med spänning – Kläder för skydd mot termiska risker orsakade av ljusbågar – Del 2: Fordringar

*Live working –
Protective clothing against the thermal hazards of an electric arc –
Part 2: Requirements*

Som svensk standard gäller europastandarden EN 61482-2:2020. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61482-2:2020.

Nationellt förord

Europastandarden EN 61482-2:2020

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 61482-2, Second edition, 2018 - Live working - Protective clothing against the thermal hazards of an electric arc - Part 2: Requirements**

utarbetad inom International Electrotechnical Commission, IEC.

ICS 13.220.40; 29.260.99

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ICS 13.220.40; 29.260

English Version

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

Travaux sous tension - Vêtements de protection contre les dangers thermiques d'un arc électrique - Partie 2: Exigences
(IEC 61482-2:2018, modifiée)

Arbeiten unter Spannung - Schutzkleidung gegen die thermischen Gefahren eines Lichtbogens - Teil 2: Anforderungen
(IEC 61482-2:2018, modifiziert)

This European Standard was approved by CENELEC on 2018-05-08. 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 78/1205/FDIS, future edition 2 of IEC 61482-2, prepared by IEC/TC 78 "Live working" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61482-2:2020.

A draft amendment, which covers common modifications to IEC 61482-2 (78/1205/FDIS), was prepared by CLC/TC 78, "Equipment and tools for live working" and approved by CENELEC.

The following dates are fixed:

- latest date by which this document has (dop) 2020-11-01 to be implemented at national level by publication of an identical national standard or by endorsement
- latest date by which the national (dow) 2023-05-01 standards conflicting with this document have to be withdrawn

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 mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

Endorsement notice

The text of the International Standard IEC 61482-2:2018 was approved by CENELEC as a European Standard with agreed common modifications.

"

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 When 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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60417	DB	Graphical symbols for use on equipment	-	-
IEC 61318	-	Live working - Conformity assessment applicable to tools, devices and equipment	EN 61318	2008
IEC 61340-2-3	2016	Electrostatics - Part 2-3: Methods of test for determining the resistance and resistivity of solid materials used to avoid electrostatic charge accumulation	EN 61340-2-3	2016
IEC 61477	-	Live working - Minimum requirements for the utilization of tools, devices and equipment	EN 61477	2009
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	-	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
ISO 3146	-	Plastics - Determination of melting behaviour (melting temperature or melting range) of semi-crystalline polymers by capillary tube and polarizing-microscope methods	EN ISO 3146	2000

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 3758	-	Textiles - Care labelling code using symbols	EN ISO 3758	2012
ISO 5077	-	Textiles - Determination of dimensional change in washing and drying	EN ISO 5077	2008
ISO 13688	2013	Protective clothing - General requirements	EN ISO 13688	2013
ISO 13934-1	-	Textiles - Tensile properties of fabrics – Part 1: Determination of maximum force and elongation at maximum force using the strip method	EN ISO 13934-1	2013
ISO 13937-2	-	Textiles - Tear properties of fabrics – Part 2: Determination of tear force of trouser-shaped test specimens (Single tear method)	EN ISO 13937-2	2000
ISO 13938-1	-	Textiles - Bursting properties of fabrics – Part 1: Hydraulic method for determination of bursting strength and bursting distension	EN ISO 13938-1	1999
ISO 13938-2	-	Textiles - Bursting properties of fabrics - Part 2: Pneumatic method for determination of bursting strength and bursting distension	EN ISO 13938-2	1999
ISO 15025	-	Protective clothing - Protection against flame - Method of test for limited flame spread	EN ISO 15025	2016
ISO 17493	2016	Clothing and equipment for protection against heat - Test method for convective heat resistance using a hot air circulating oven	-	-
ISO 30023	-	Textiles - Qualification symbols for labelling workwear to be industrially laundered	EN ISO 30023	2012

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LIVE WORKING – PROTECTIVE CLOTHING AGAINST THE THERMAL HAZARDS OF AN ELECTRIC ARC –

Part 2: Requirements

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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International Standard IEC 61482-2 has been prepared by IEC technical committee 78: Live working.

This second edition cancels and replaces the first edition published in 2009. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) new definition for *ELIM*, *ATPV* and *EBT* as used in accordance with IEC 61482-1-1:–;
- b) new requirements for the thermal stability of the intermediate layers;
- c) additional material requirement for volume resistance;
- d) new test procedure for the thermal resistance of sewing threads;

e) new symbol for marking.

The text of this standard is based on the following documents:

FDIS	Report on voting
78/1205/FDIS	78/1228/RVD

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

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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

A list of all parts of the IEC 61482 series, published under the general title *Live working – Protective clothing against the thermal hazards of an electric arc*, can be found on the IEC website.

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

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

INTRODUCTION

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

The products designed and manufactured according to 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.

The product covered by this document may have an impact on the environment during some or all stages of its life cycle. These impacts can range from slight to significant, be of short-term or long-term duration, 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 – PROTECTIVE CLOTHING AGAINST THE THERMAL HAZARDS OF AN ELECTRIC ARC –

Part 2: Requirements

1 Scope

This part of IEC 61482 is applicable to *protective clothing* used in work where there is the risk of exposure to an *electric arc hazard*.

This document specifies requirements and test methods applicable to *materials* and *garments* for *protective clothing* for electrical workers against the thermal hazards of an *electric arc*.

Electric shock hazard is not covered by this document, which is applicable in combination with standards covering such hazards.

Other effects than the thermal effects of an *electric arc* like noise, light emissions, pressure rise, hot oil, electric shock, the consequences of physical and mental shock or toxic influences are not covered by this document.

Protection of eyes, face, head, hands and feet against *electric arc hazard* is not covered by this document.

NOTE Requirements and tests to cover *electric arc hazards* to these parts of the body are under development.

Protective clothing for work intentionally using an *electric arc*, e.g. arc welding, plasma torch, is not covered by this document.

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, *Live working – Conformity assessment applicable to tools, devices and equipment*

IEC 61340-2-3:2016, *Electrostatics – Part 2-3: Methods of test for determining the resistance and resistivity of solid materials used to avoid electrostatic charge accumulation*

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

IEC 61482-1-1:–¹, *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, *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)*

ISO 3146, *Plastics – Determination of melting behaviour (melting temperature or melting range) of semi-crystalline polymers by capillary tube and polarizing-microscope methods*

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

ISO 5077, *Textiles – Determination of dimensional change in washing and drying*

ISO 13688:2013, *Protective clothing – General requirements*

ISO 13934-1, *Textiles – Tensile properties of fabrics – Part 1: Determination of maximum force and elongation at maximum force using the strip method*

ISO 13937-2, *Textiles – Tear properties of fabrics – Part 2: Determination of tear force of trouser-shaped test specimens (Single tear method)*

ISO 13938-1, *Textiles – Bursting properties of fabrics – Part 1: Hydraulic method for determination of bursting strength and bursting distension*

ISO 13938-2, *Textiles – Bursting properties of fabrics – Part 2: Pneumatic method for determination of bursting strength and bursting distension*

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

ISO 17493:2016, *Clothing and equipment for protection against heat – Test method for convective heat resistance using a hot air circulating oven*

ISO 30023, *Textiles – Qualification symbols for labelling workwear to be industrially laundered*

¹ Under preparation. Stage at time of publication: IEC CDV 61482-1-1:2017.