
Delo pod napetostjo - Oblačila za zaščito pred temperaturno nevarnostjo električnega obloka - 2. del: Zahteve

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

Arbeiten unter Spannung - Schutzkleidung gegen die thermischen Gefahren eines Lichtbogens - Teil 2: Anforderungen

Travaux sous tension - Vêtements de protection contre les dangers thermiques d'un arc électrique - Partie 2: Exigences

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ICS:

13.260	Varstvo pred električnim udarom. Delo pod napetostjo	Protection against electric shock. Live working
13.340.10	Varovalna obleka	Protective clothing

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en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61482-2

May 2020

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

EN 61482-2:2020 (E)**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.

<https://standards.iteh.ai/catalog/standards/sist/976b71a9-2b65-4129-9820-9eba52501bc6/sist-en-61482-2-2020>

Endorsement notice

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

COMMON MODIFICATIONS

4 Requirements

4.4 Arc thermal protection requirements

4.4.2 Arc rating

Replace paragraph 2 by:

"Protective clothing shall have a minimum *arc thermal protection*, where the *ELIM* is at least 130 kJ/m² (3,2 cal/cm²).

In addition, it can have a minimum *arc thermal protection*, where the lower value of *ATPV* and *EBT* is at least 167 kJ/m² (4 cal/cm²). In case only either *ATPV* or *EBT* can be determined, this value shall be at least 167 kJ/m² (4 cal/cm²)."

5 Tests

5.2 Tests of design requirements for protective clothing

5.2.3 Size designation and ergonomics

Delete NOTE.

5.4 Tests of arc thermal protection requirements

5.4.1 Type tests

Replace paragraph 1, 1st indent, by:

"

— EN 61482-1-1 (method 1, both procedure A and procedure B)

Testing according to EN 61482-1-1 shall provide the *ELIM* and in addition the *ATPV* or *EBT*."

5.4.2 Alternative means to arc thermal resistance test to fulfil conformity assessment of protective clothing having completed the production phase

Delete sub-clause.

6 Conformity assessment of protective clothing having completed the production phase

Add note:

"NOTE It is essential to interpret the term "conformity assessment" used in this clause as the assessment of conformity to the provisions of this standard by internal production control of the manufacturer, not to the assessment of conformity to legal provisions."

EN 61482-2:2020 (E)

Annex A

(normative)

Marking and instructions for use

A.1 Marking

Replace paragraph 1, 5th indent by

"

- symbol IEC-60417-6353 (2016-02) – Protection against the thermal effect of the electric arc – and, adjacent to the symbol, the number of the relevant EN standard (EN 61482-2) and the *arc thermal protection* in the form of *arc rating ELIM* and/or *arc protection class* (APC 1 or APC 2);

NOTE 1 The exact ratio of the height of the figure to the base is 1,43. For the purpose of convenience, this ratio can be between the values of 1,4 and 1,5.

NOTE 2 The text in the boxes below the symbol are examples.

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EN 61482-2
ELIM = xxx cal/cm²

or

EN 61482-2
APC y

or

EN 61482-2
ELIM = xxx cal/cm²
APC z

or

EN 61482-2
undershirt ref. AAA: not determined
jacket ref. BBB: ELIM = xxx cal/cm² / APC y
parka ref. CCC: ELIM = xxx cal/cm² / APC y
Garment system: ELIM = xxx cal/cm² / APC z

"

Add as 6th indent

"

— in addition to *ELIM* the lower value of either *ATPV* or *EBT* can be added;

NOTE The box in the note is an example.

ATPV = yyy cal/cm ²

"

A.2 Instructions for use

Replace paragraph 1, 1st sentence by:

"Protective clothing shall be supplied to the customer with printed information."

Annex C (normative)

Classification of defects

Replace title (headline) by:

Annex C
(informative)
Classification of defects

Classification of defects

Replace paragraph 2 by: <https://standards.iteh.ai/catalog/standards/sist/976b71a9-2b65-4129-9820-9eba52501bc6/sist-en-61482-2-2020>

"The manufacturer should test the *materials* and *garments* having completed the production phase at a frequency to ascertain the protective performance for critical defects."

EN 61482-2:2020 (E)

"

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

EN 61482-2:2020 (E)

<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

Annex ZZ (informative)

Relationship between this European Standard and the essential requirements of REGULATION (EU) 2016/425 EEC aimed to be covered

This European Standard has been prepared under the Commission's standardization request M/031 to provide one voluntary means of conforming to essential requirements of Regulation (EU) 2016/425 EEC relating to Personal Protective Equipment (PPE).

Once this standard is cited in the Official Journal of the European Union under that Regulation, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Regulation, and associated EFTA regulations.

Table ZZ.1 — Correspondence between this European Standard and Annex II of the Regulation (EU) 2016/425 EEC Personal Protective Equipment

Essential Requirements of Regulation 2016/425/EEC	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
1.2.1 Absence of risks and other 'inherent' nuisance factors	4.2, 4.3.1, 4.3.2, 4.3.5, 4.4.1, 5.1.3, 5.2.5	
1.3.2 Lightness and design strength	4.3.4.1, 4.3.4.2, 4.3.4.3, 5.1.3	
1.4 Information supplied by manufacturer	4.6, A.2	
2.4 PPE subject to ageing	5.2.4	
2.12 PPE bearing identification marks related to health and safety	4.5, 5.5.2, A.1	
3.6.1 Protection against heat and fire – PPE constituent materials and other components	4.3.3, 4.4.2, 4.4.3, 5.1.3	For 4.4.2 only ELIM applies
3.6.2 Protection against heat and fire – Complete PPE ready for use	4.4.2, 4.4.3, 5.1.3	For 4.4.2 only ELIM applies

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the products falling within the scope of this standard."



IEC 61482-2

Edition 2.0 2018-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

**Travaux sous tension – Vêtements de protection contre les dangers thermiques
d'un arc électrique –
Partie 2: Exigences**

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