



NSAI
Standards

Irish Standard
I.S. EN 60519-4:2013

Safety in electroheating installations -- Part 4: Particular requirements for arc furnace installations (IEC 60519-4:2013 (EQV))

I.S. EN 60519-4:2013

Incorporating amendments/corrigenda issued since publication:

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I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

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EUROPEAN STANDARD
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EN 60519-4

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Supersedes EN 60519-4:2006

English version

Safety in electroheating installations -
Part 4: Particular requirements for arc furnace installations
(IEC 60519-4:2013)

Sécurité dans les installations
électrothermiques -
Partie 4: Exigences particulières pour les
installations de fours à arc
(CEI 60519-4:2013)

Sicherheit in Elektrowärmeanlagen -
Teil 4: Besondere Bestimmungen für
Lichtbogenofenanlagen
(IEC 60519-4:2013)

This European Standard was approved by CENELEC on 2013-07-24. 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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CENELEC

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 27/904/FDIS, future edition 4 of IEC 60519-4, prepared by IEC/TC 27 "Industrial electroheating and electromagnetic processing" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60519-4:2013.

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) 2014-04-24
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-07-24

The clauses of parts of the EN 60519 series (hereinafter called Particular requirements) supplement or modify the corresponding clauses of EN 60519-1:2011 (*General requirements* hereinafter called Part 1).

This part of EN 60519 is to be read in conjunction with Part 1. It supplements or modifies the corresponding clauses of Part 1. Where the text indicates an "addition" to or a "replacement" of the relevant provision of Part 1, these changes are made to the relevant text of Part 1. Where no change is necessary, the words "This clause of Part 1 is applicable" are used. When a particular subclause of Part 1 is not mentioned in this part, that subclause applies as far as is reasonable.

Additional specific provisions to those in Part 1, given as individual clauses or subclauses, are numbered starting from 101.

NOTE The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.

This document supersedes EN 60519-4:2006.

EN 60519-4:2013 includes the following significant technical changes with respect to EN 60519-4:2006:

- The structure has been amended and adjusted to EN 60519-1:2011;
- The classification (Clause 4) has been adapted to details with respect to secondary voltage in electric arc furnace installations;
- All provisions have been redrafted and the text is more concise with respect to EAF;
- Annexes AA, BB and CC have been restructured, with respect to details concerning high voltage designs and non-electrical issues, however to be aware of in those installations.

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

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 60519-4:2013 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60073:2002	NOTE	Harmonised as EN 60073:2002 (not modified).
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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC/TS 60479-1	-	Effects of current on human beings and livestock - Part 1: General aspects	-	-
IEC 60519-1 + corr. November	2010 2012	Safety in electroheating installations - Part 1: General requirements	EN 60519-1	2011
IEC 60676	-	Industrial electroheating equipment - Test methods for direct arc furnaces	EN 60676	-
IEC 60683	-	Industrial electroheating equipment - Test methods for submerged arc furnaces	EN 60683	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SAFETY IN ELECTROHEATING INSTALLATIONS –

Part 4: Particular requirements for arc furnace installations

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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- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60519-4 has been prepared by IEC technical committee 27: Industrial electroheating and electromagnetic processing.

This fourth edition cancels and replaces the third edition published in 2006. This edition constitutes a technical revision.

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

- The structure has been amended and adjusted to IEC 60519-1:2010;
- The classification (Clause 4) has been adapted to details with respect to secondary voltage in electric arc furnace installations;
- All provisions have been redrafted and the text is more concise with respect to EAF;
- Annexes AA, BB and CC have been restructured, with respect to details concerning high voltage designs and non-electrical issues, however to be aware of in those installations.

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

FDIS	Report on voting
27/904/FDIS	27/928/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 publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all the parts of IEC 60519 series, under the general title *Safety in electroheating installations*, can be found on the IEC website.

The clauses of parts of the IEC 60519 series (hereinafter called Particular Requirements) supplement or modify the corresponding clauses of IEC 60519-1:2010 (*General requirements* hereinafter called Part 1).

This part of IEC 60519 is to be read in conjunction with Part 1. It supplements or modifies the corresponding clauses of Part 1. Where the text indicates an "addition" to or a "replacement" of the relevant provision of Part 1, these changes are made to the relevant text of Part 1. Where no change is necessary, the words "This clause of Part 1 is applicable" are used. When a particular subclause of Part 1 is not mentioned in this part, that subclause applies as far as is reasonable.

Additional specific provisions to those in Part 1, given as individual clauses or subclauses, are numbered starting from 101.

NOTE The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site 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.

SAFETY IN ELECTROHEATING INSTALLATIONS –

Part 4: Particular requirements for arc furnace installations

1 Scope and object

This clause of Part 1 is replaced by the following.

Replacement:

This part of IEC 60519 provides particular safety requirements for electric arc furnace installations and its operating and maintenance personnel.

These safety provisions concern the protection of persons and the environment against dangers of electrical origin and also against certain dangers of non-electrical origin.

This standard is applicable to electroheating installations such as:

- a) Furnaces for direct arc heating, forming arcs between the electrode and metal such as the electric arc furnace using alternating current (EAFac) or direct current (EAFdc), and ladle furnace (LF);
- b) Furnaces for arc-resistance heating forming arcs between the electrode and the charge material or heating the charge material by the Joule effect, such as the submerged arc furnace using alternating current (SAFac), or direct current (SAFdc).

NOTE For purposes of this document abbreviation EAF is used for all kinds of electric arc furnace installations.

2 Normative references

This clause of Part 1 is applicable with the following additions.

Additions:

IEC 60519-1:2010, *Safety in electroheating installations – Part 1: General requirements*

IEC/TS 60479-1, *Effects of current on human beings and livestock – Part 1: General aspects*

IEC 60676, *Industrial electroheating equipment – Test methods for direct arc furnaces*

IEC 60683, *Industrial electroheating equipment – Test methods for submerged-arc furnaces*

3 Terms and definitions

This clause of Part 1 is applicable with the following additions.

Additions:

NOTE 101 General definitions can be found in the IEC 60050 series, *International Electrotechnical Vocabulary*. Terms relating to industrial electroheat are defined in IEC 60050-841. Terms relating to EAF and SAF are also defined in IEC 60676 and IEC 60683.

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