IEC 60519-4

Edition 4.0 2013-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Safety in electroheating installations – Part 4: Particular requirements for arc furnace installations

Sécurité dans les installations électrothermiques – Partie 4: Exigences particulières pour les installations de fours à arc

IEC 60519-4:2013

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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SAFETY IN ELECTROHEATING INSTALLATIONS –

Part 4: Particular requirements for arc furnace installations

FOREWORD

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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.