**Draft for Public Comment**

Form 36

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Responsible committee: PEL/27 Electroheating

Interested committees:

Title: Draft BS EN 60519-3 Safety in installations for electroheating and electromagnetic processing. Part 3: Particular requirements for inductively coupled and resistive equipment and processing installations.

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

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ii) affects other national standard(s)
iii) requires additional national guidance or information

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Responsible Committee Secretary: Committee Service Centre (BSI)
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**Introduction**

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

**UK Vote**

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

**Submission of Comments**

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at **https://standardsdevelopment.bsigroup.com/**. You will need to register in order to comment.

**Template for comments and secretariat observations**

| Date: xx/xx/20xx | Document: ISO/DIS xxxx |
|---|---|

| 1 | 2 | (3) | 4 | 5 | (6) | 7 |
|---|---|---|---|---|---|---|
| **MB** | Clause No./ Subclause No./Annex **(e.g. 3.1)** | Paragraph/Figure/ Table/Note | **Type of comment** | **Commend (justification for change) by the MB** | **Proposed change by the MB** | **Secretariat observations on each comment submitted** |
| | 3.1 | Definition 1 | ed | Definition is ambiguous and needs clarifying. | Amend to read '...so that the mains connector to which no connection...' | |
| | 6.4 | Paragraph 2 | te | The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK. | Delete reference to UV photometer. | |

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# 27/1048/CD

COMMITTEE DRAFT (CD)

| | |
|---|---|
| PROJECT NUMBER: **IEC 60519-3 ED4** | |
| DATE OF CIRCULATION: **2017-11-17** | CLOSING DATE FOR COMMENTS: **2018-02-09** |
| SUPERSEDES DOCUMENTS: **27/1036/RR** | |

| | |
|---|---|
| IEC TC 27 : INDUSTRIAL ELECTROHEATING AND ELECTROMAGNETIC PROCESSING | |
| SECRETARIAT: Poland | SECRETARY: Ms Alicja Haras |
| OF INTEREST TO THE FOLLOWING COMMITTEES: | PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary. |
| FUNCTIONS CONCERNED: ☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☒ SAFETY | |

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

**Safety in installations for electroheating and electromagnetic processing – Part 3: Particular requirements for inductively coupled and resistive equipment and processing installations**

NOTE FROM TC/SC OFFICERS:

This draft is aligned with the fifth edition of IEC 60519-1 published in 2015. At a later stage it will be aligned with the sixth edition of IEC 60519-1 which is currently under way.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

# SAFETY IN INSTALLATIONS FOR ELECTROHEATING AND ELECTROMAGNETIC PROCESSING –

## Part 3: Particular requirements for inductively coupled and resistive equipment and processing installations

## FOREWORD

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International Standard IEC 60519-3 has been prepared by IEC technical committee 27: Industrial electroheating and electromagnetic processing.

This fourth edition cancels, replaces and merges the third edition of IEC 60519-3 published in 2005, and the second edition of IEC 60519-11 published in 2007. This edition constitutes a technical revision and is aligned with the fifth edition of IEC 60519-1 published in 2015. At a later stage it will be aligned with the sixth edition of IEC 60519-1 which is currently under way. This edition includes the following significant technical changes with respect to the previous edition:

a) The title and scope of the standard are clarified and expanded.

b) Terms and definitions as well as the list of normative references are updated and completed with new items.

c) The requirements are restructured, in adherence to IEC 60519-1 Ed.5.

d) Additional requirements for electric and magnetic fields, touch currents and prospective touch voltages are added, by reference to IEC TS 62996:2017 and IEC TS 62997:2017

e) New guidelines for using this standard are added.

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

| FDIS | Report on voting |
|---|---|
| — | — |

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 parts in the IEC 60519 series, published under the general title *Safety in installations for electroheating and electromagnetic processing*, can be found on the IEC website.

The clauses of this part X of the IEC 60519 series (called Particular Requirements) supplement or modify the corresponding clauses of IEC 60519-1:2015 (*General Requirements*, hereinafter called Part 1).

In this standard, the following print types are used:

– requirements and definitions: in roman type;
– NOTES: in smaller roman type;
– terms used throughout this standard which are defined in Clause 3: **in bold type**.

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 a “modification” of, "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. When a particular subclause of Part 1 is not applicable, the word “Void” is used.
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.

The National Committees are requested to note that for this publication the stability date is 20XX

this text is included for the information of the national committees and will be deleted at the publication stage.

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# INTRODUCTION

The scope of this Part 3 standard covers very different types and designs of equipment used for many different purposes by the industry. It is intended to cover all industrial equipment based on inductively coupled heating of the workload, and direct resistive heating of the workload, with examples described in Clause 1.

This standard is a revision and merger of IEC 60519-3:2005 and IEC 60519-11:2007, which are cancelled.

Some types of electroheating equipment, including the workload, emit infrared radiation of hazardous levels. It has been agreed in TC 27 that IEC 60519-12 addresses these infrared radiation aspects for this part of the series as well.

The two publications IEC TS 62996:2017 and IEC TS 62997:2017 address touch current hazards at frequencies between 1 kHz and 6 MHz, and magnetic nearfield hazards between 1 Hz and 6 MHz. Both these publications are applicable to the types of equipment and installations dealt with in this part of the IEC 60519 series. The proper requirements are referred to in this standard. The rationales are given in the abovementioned Technical Specifications, and their many examples are very useful.

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# SAFETY IN ELECTROHEATING AND ELECTROMAGNETIC PROCESSING INSTALLATIONS –

## Part 3: Particular requirements for inductively coupled and resistive equipment and processing installations

## 1 Scope and object

This subclause of Part 1 is modified by the following regarding the areas of application.

*Modification:*

This part of IEC 60519 specifies particular safety requirements for inductively coupled and resistive processing equipment and installations. Their processing frequencies for inductively coupled electroheating and electromagnetic processing are from 1 Hz. Direct current is included for resistive heating. Processing frequencies higher than 6 MHz are not dealt with in this standard.

This standard is applicable to mainly:

– installations for inductively coupled heating of slabs, billets, rods, strip, wire, tubes, and rivets, for subsequent hot forming and heat treatment;
– equipment for spot welding;
– installations with inductively coupled crucible furnaces or channel furnaces for melting, holding and superheating;
– inductively coupled stirring devices for casting machines, arc furnaces, and ladles;
– inductively coupled transport of liquid metal;
– influencing the ingot surface or the pouring stream enhancing crystallization by means of an electromagnetic field during continuous casting;
– sealing of mechanical gaps of melt vessels, for example, in vertical galvanizing lines;
– the parts of conveying or handling equipment of the installation and the structures of the equipment or furnace, which are within the influences of the heating section and/or the electromagnetic field.

This standard is not applicable to:

– indirect resistance heating equipment as defined in IEC 60050-841:2004, 841-23-03
– furnaces for resistive heating of charges with such resistance that processing is viable

NOTE The resistive heating equipment and installations for which this standard is not applicable are covered by IEC 60519-2:2006 and IEC 60519-21:2008.

## 2 Normative references

This clause of Part 1 is applicable except as follows.

*Additions:*

IEC 60110-1:1998, *Power capacitors for induction heating installations – Part 1: General*

IEC 60143-1:2015, *Series capacitors for power systems – Part 1: General* (with Corrigendum 2017)

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