



DPC: 21/30433148 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000

Fax: +44 (0)20 8996 7400

www.bsigroup.com

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Interested committees:

Title: Draft BS EN 60519-3 Ed.4.0 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

- i) has any issues related to 3rd party IPR, patent or copyright
- ii) affects other national standard(s)
- iii) requires additional national guidance or information

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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 Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.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
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Comment (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.	



27/1048/CD

COMMITTEE DRAFT (CD)

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IEC 60519-3 ED4

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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.

CONTENTS

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope and object.....	7
2 Normative references	7
3 Terms and definitions	8
3.1. General concepts.....	8
4 Classification of electroheating equipment.....	9
4.3 Sub-division of installation and equipment	9
4.3.1 Subdivision into parts.....	9
5 Risk assessment	9
6 General provisions	10
7 Protection against electric shock.	10
8 Protection against hazards caused by electric or magnetic nearfields	11
8.3 Local electric fields	11
8.5 Requirements related to objects worn, carried or held by persons	11
9 Protection against hazards from radiation.....	11
9.1 General	11
10 Protection against hazards from thermal influences	11
10.6 Over-temperature protection	12
10.6.101 Cooling water flow control	12
10.6.102 Temperature-limiting safety devices	12
11 Protection against hazards from fire	12
12 Protection against hazards from fluids	12
13 Specific requirements for components and subassemblies	12
14 Control of the installation or equipment.....	12
15 Protection against mechanical hazards.....	13
16 Protection against hazards resulting from use	13
17 Protection against other hazards	13
18 Verification and testing	13
18.3. Verification of conformity with limits for electric and magnetic fields.....	14
18.8.2 Numerical assessment of electric or magnetic fields	15
2 Information for use	15
Annex A (informative) List of significant hazards.....	16
Annex B (informative) Electric and magnetic fields, touch currents – limits of exposure hazards	17
Annex C (informative) Optical radiation – limits of exposure hazards	18
Annex D (informative) Limits for exposure hazards – noise and vibration	19
Annex E (normative) Provisions concerning EMC.....	20
Annex F (normative) Marking and warning	21
Annex G (informative) Guidelines on using this standard	22
G.101 Organization and use of the material	22
Annex H (informative) Connection with ISO 13577 series.....	23
Annex AA (normative) Additional requirements for large installations for induction melting and forces on liquid metal	24



47	AA.1 Protection against hazards from thermal influences	24
48	AA.2 Power capacitors in the main power circuit	24
49	AA.3 Mains frequency three-phase power supplies.....	25
50		
51	Table 1 – Test voltages for dielectric tests	14
52		

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

- 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 60519-3 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.

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

FDIS	Report on voting
—	—

114
115 Full information on the voting for the approval of this standard can be found in the report on
116 voting indicated in the above table.

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

118 A list of all parts in the IEC 60519 series, published under the general title *Safety in*
119 *installations for electroheating and electromagnetic processing*, can be found on the IEC
120 website.

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

124 In this standard, the following print types are used:

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

128
129 This part of IEC 60519 is to be read in conjunction with Part 1. It supplements or modifies the
130 corresponding clauses of Part 1. Where the text indicates a "modification" of, "addition" to or a
131 "replacement" of the relevant provision of Part 1, these changes are made to the relevant text
132 of Part 1. Where no change is necessary, the words "This clause of Part 1 is applicable" are
133 used. When a particular subclause of Part 1 is not mentioned in this part, that subclause
134 applies as far as is reasonable. When a particular subclause of Part 1 is not applicable, the
135 word "Void" is used.

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

138 NOTE The following numbering system is used:

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

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

- 146 • reconfirmed,
- 147 • withdrawn,
- 148 • replaced by a revised edition, or
- 149 • amended.

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

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

154

INTRODUCTION

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

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

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

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

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)