

Safety in electroheat installations

Part 3. Particular requirements for induction and conduction heating and induction melting installations

The European Standard EN 60519-3 : 1995 has the status of a British Standard

ICS 25.180.10

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Power Electrical Engineering Standards Policy Committee (PEL/-) to Technical Committee PEL/87, upon which the following bodies were represented:

Association of Manufacturers Allied to the Electrical and Electronic Industry (BEAMA Ltd.)
British Glass Manufacturers' Confederation
British Industrial Furnace Constructors' Association
British National Committee for Electroheat
British Steel plc
Electric Trace Heating Industry Council (ETHIC)
Electricity Association
Energy Industries Council
Engineering Equipment and Materials Users' Association
Engineering Industries Association
Health and Safety Executive
Induction and Dielectric Heating Manufacturers' Association
Institution of Electrical Engineers
Lighting Industry Federation Ltd.

This British Standard, having been prepared under the direction of the Power Electrical Engineering Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 October 1993

© BSI 1993

The following BSI references relate to the work on this standard:
Committee reference PEL/87
Draft for comment 89/26562 DC

ISBN 0 580 22307 8

Amendments issued since publication

Amd. No.	Date	Text affected
9102	October 1996	Indicated by double vertical sidelining

Summary of pages

The following table identifies the current issue of each page. Issue 1 indicates that a page has been introduced for the first time by amendment. Subsequent issue numbers indicate an updated page. Double vertical sidelining on replacement pages indicates the most recent changes (amendment, addition, deletion).

Page	Issue	Page	Issue
Front cover	2	10	original
Inside front cover	2	11	original
a	1	12	original
b	blank	13	original
i	2	14	original
ii	2	15	original
EN title page	2	16	original
2	2	17	original
3	original	18	original
4	original	19	original
5	original	20	original
6	original	21	original
7	original	22	2
8	original	Inside back cover	2
9	original	Back cover	2

Change of identifier

Wherever BS 7699 : Part 3 : 1993 appears in this standard, it should be read as BS EN 60519-3 : 1996.

Contents

	Page
Committees responsible	Inside front cover
National foreword	ii
 Text of EN 60519-3	3
National annex NA (informative) Cross-references	Inside back cover

National foreword

This British Standard has been prepared by Technical Committee PEL/27 (formerly PEL/87) and is the English language version of EN 60519-3 : 1995 *Safety in electroheat installations. Part 3: Particular requirements for induction and conduction heating and induction melting installations*, published by the European Committee for Electrotechnical Standardization (CENELEC). It was derived by CENELEC from IEC 519-3 : 1988, published by the International Electrotechnical Commission (IEC).

CENELEC made three modifications to IEC 519-3 : 1988, as follows:

- paragraph added to **14.4.1** to clarify that earth current for electrostatic discharge does not need to be monitored;

- headline of table 41A changed to align with text of **14.2.1**;

- note 2 of table 41A deleted as it was ambiguous.

These changes are indicated with a vertical line in the margin.

Cross-references. Details of international standards quoted in this British Standard for which there are identical or technically equivalent British Standards are given in national annex NA (informative).

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Descriptors: Electroheat installation, heating, induction, conduction, melting

English version

Safety in electroheat installations
Part 3: Particular requirements for induction and
conduction heating and induction melting installations
(IEC 519-3 : 1988, modified)

Sécurité dans les installations
électrothermiques
Partie 3: Règles particulières pour les
installations de chauffage par induction
et par conduction et pour les
installations de fusion par induction
(CEI 519-3 : 1988, modifiée)

Sicherheit in Elektrowärmeanlagen
Teil 3: Besondere Anforderungen an
induktive und konduktive
Erwärmungsanlagen und an
Induktionsschmelzanlagen
(IEC 519-3 : 1988, modifiziert)

This European Standard was approved by CENELEC on 1995-09-20. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B-1050 Brussels

Foreword

The text of the International Standard IEC 519-3 : 1988, prepared by IEC TC 27, Industrial electroheating equipment, together with common modifications prepared by the German national committee, was approved by CENELEC as HD 491.3 S1 on 1990-03-05.

This Harmonization Document was submitted to the formal vote for conversion into a European Standard and was approved by CENELEC as EN 60519-3 on 1995-09-20.

The following date was fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1996-09-01

Annexes designated 'normative' are part of the body of the standard. In this standard, appendix A and annex ZA are normative. Annex ZA has been added by CENELEC.

Contents

	Page
1 Scope	3
2 Definitions	3
3 Inductor	4
4 Capacitors	5
5 Mains frequency power sources	6
6 Motor-alternator frequency converters	6
7 Solid state frequency converters	7
8 Ferromagnetic frequency multipliers	7
9 Switchgear	7
10 Cables, wires and busbars	8
11 Liquid cooling (see IEC Publication 519-1, Sub-clause 6.5)	9
12 Rating plate (see IEC Publication 519-1, Clause 8)	9
13 Clearance and creepage distances	9
14 Protection against electric shock (see IEC Publication 519-1, Clause 12)	10
15 Radio-interferences	13
Section A Specific requirements for induction and conduction heating installations	14
Section B Specific requirements for induction melting installations	17
Appendix A Admissible touch voltage as a function of duration	20
Annex ZA (normative) Normative references to international publications, with their corresponding European publications	22

SAFETY IN ELECTROHEAT INSTALLATIONS

Part 3: Particular requirements for induction and conduction heating and induction melting installations

1. Scope

1.1 This standard shall be read in conjunction with IEC Publication 519-1.

1.2 It consists of:

- a general section covering requirements common to both induction and conduction heating installations and induction melting installations and,
- two sections, A and B, giving specific requirements for each type of installation.

1.3 *The standard applies to*

- installations for induction and conduction heating of solids, at low, medium and high frequencies. (For conduction heating, use of direct current is also included);
- installations for induction melting, holding and superheating at low, medium and high frequencies;
- those parts of the conveying or handling equipment of the electro-heat installation, which are within the influence of the heating section.

Examples of application:

Installations for induction and conduction heating of slabs, billets, rods, strip, wire, tubes, rivets, etc., for subsequent hot forming and heat treatment.

Installations with induction crucible furnaces or induction channel furnaces.

2. Definitions

Note.- Terms relating to this publication are defined in IEC Publications 519-1 and 50(841).

Terms which are not defined in IEC Publication 519-1 but considered essential for this publication are presented as follows.