

Safety in electroheat installations —

Part 2: Particular requirements for resistance heating equipment

The European Standard EN 60519-2:2006 has the status of a British Standard

ICS 25.180.10

National foreword

This British Standard was published by BSI. It is the UK implementation of EN 60519-2:2006. It is identical with IEC 60519-2:2006. It supersedes BS EN 60519-2:1994 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PEL/27, Electroheating.

A list of organizations represented on PEL/27 can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

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**Safety in electroheat installations
Part 2: Particular requirements
for resistance heating equipment
(IEC 60519-2:2006)**

Sécurité dans les installations
électrothermiques
Partie 2: Exigences particulières
pour les installations de chauffage
par résistance
(CEI 60519-2:2006)

Sicherheit in Elektrowärmeanlagen
Teil 2: Besondere Anforderungen an
Einrichtungen mit Widerstandserwärmung
(IEC 60519-2:2006)

This European Standard was approved by CENELEC on 2006-09-01. 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.

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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

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Foreword

The text of document 27/525/FDIS, future edition 3 of IEC 60519-2, prepared by IEC TC 27, Industrial electroheating equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60519-2 on 2006-09-01.

This European Standard supersedes EN 60519-2:1993.

Significant changes with respect to EN 60519-2:1993 are as follows:

- the structure has been adjusted to the latest ISO/IEC Directives;
- the latest edition of EN 60519-1 has been taken into account;
- definitions have been brought into line with the second edition of IEC 60050-841.

This standard shall be used in conjunction with EN 60519-1:2003. It is intended to modify, replace or make additions to EN 60519-1 for particular requirements for resistance heating equipment.

The following dates were 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) | 2007-06-01 |
| – latest date by which the national standards conflicting
with the EN have to be withdrawn | (dow) | 2009-09-01 |

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60519-2:2006 was approved by CENELEC as a European Standard without any modification.

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SAFETY IN ELECTROHEAT INSTALLATIONS –

Part 2: Particular requirements for resistance heating equipment

1 Scope and object

This part of IEC 60519 is applicable to the indirect resistance heating equipment and the direct resistance heating equipment specified in items a) and b) below respectively, operating in voltage bands 1 and 2.

The object of this standard is the standardization of safety requirements for both indirect and direct resistance heating equipment described below.

a) Indirect resistance heating equipment

These particular requirements apply to equipment for indirect resistance heating, such equipment being energized with d.c. voltage or with single-phase or multiphase a.c. voltage of frequency up to 60 Hz.

Heat generation is effected by current flow in

- solid metallic heating conductors;
- solid non-metallic heating conductors;
- radiant tubes and immersion heaters.

Examples of indirect resistance heating equipment in general use include

- discontinuous furnaces such as batch-type furnaces, muffle furnaces, pot-type furnaces (crucible furnaces), pit-type furnaces, bell-type furnaces, bogie-hearth furnaces, fluidized-bed furnaces, immersion heater metal baths;
- continuous furnaces with continuous or discontinuous charge conveyors, such as roller-hearth furnaces, pusher furnaces, walking-beam furnaces, rotary-retort furnaces, rotary-hearth furnaces, tunnel furnaces (kilns), continuous muffle furnaces.

Indirect resistance heating equipment in general use also includes

- equipment for heating solids, liquids or gases;
- equipment for melting and holding;
- individual heating-element assemblies (movable or fixed heaters).

Indirect resistance heating equipment where particular hazards are likely to occur includes

- nitrite bath furnaces;
- indirect resistance heating equipment where an explosive atmosphere is likely to occur inside the furnace during heat treatment: furnaces for carburizing in gas atmospheres consisting of the mixture of hydrogen and methane or propane and carbon monoxide;

- indirect resistance heating equipment with protective gas and/or reaction gas atmosphere: furnaces for gas carburizing, gas nitriding, carbo-nitriding (protective gas, for example, argon);
- equipment with infrared heating elements.

These requirements do not apply to trace heating systems dealt with in IEC 60519-10.

b) Direct resistance heating equipment

These particular requirements also apply to equipment for direct resistance heating by means of current introduced by electrodes passing through the charge or a fluid to be heated. Such equipment includes, for example,

- salt-bath electrode furnaces;
- glass-melting furnaces;
- furnaces for graphitizing;
- furnaces for production of silicon carbide.

These requirements do not apply to equipment for direct resistance heating, where, owing to the technology used, IEC 60519-3, IEC 60519-4, IEC 60519-8 and IEC 60519-21 are applicable. Moreover, they do not apply to electrode-steam-boiler instantaneous water heaters and electrode pressure vessels.

2 Normative references

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

IEC 60050-841:2004, *International Electrotechnical Vocabulary (IEC) – Part 841: Industrial electroheat*

IEC 60335-1:2000, *Household and similar electrical appliances – Safety – Part 1: General requirements*
Amendment 1 (2004)¹

IEC 60364-4-41:2005, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock*

IEC 60364-4-42:2001, *Electrical installations of buildings – Part 4-42: Protection for safety – Protection against thermal effects*

IEC 60398:1999, *Industrial electroheating installations – General test methods*

IEC 60479-1:2005, *Effects of current on human beings and livestock – Part 1: General aspects*

IEC 60519-1:2003, *Safety in electroheat installations – Part 1: General requirements*

¹ There exists a consolidated edition 4.1 (2004) that includes edition 4 and its amendment 1.