

# SLOVENSKI STANDARD

## SIST EN IEC 60519-4:2022

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**Varnost pri električnih grelnih inštalacijah in elektromagnetni obdelavi - 4. del:  
Posebne zahteve za inštalacije obločnih peči (IEC 60519-4:2021)**

Safety in installations for electroheating and electromagnetic processing - Part 4:  
Particular requirements for arc furnace installations (IEC 60519-4:2021)

Sicherheit in Elektrowärmeanlagen und Anlagen für elektromagnetische  
Bearbeitungsprozesse - Teil 4: Besondere Bestimmungen für Lichtbogenofenanlagen  
(IEC 60519-4:2021)

Sécurité dans les installations destinées au traitement électrothermique et  
électromagnétique - Partie 4: Exigences particulières pour les installations de fours à arc  
(IEC 60519-4:2021)

Ta slovenski standard je istoveten z: **EN IEC 60519-4:2022**

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**ICS:**

25.180.10      Električne peči      Electric furnaces

**SIST EN IEC 60519-4:2022**      en

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN IEC 60519-4**

February 2022

ICS 25.180.10

Supersedes EN 60519-4:2013 and all of its amendments  
and corrigenda (if any)

English Version

**Safety in installations for electroheating and electromagnetic  
processing - Part 4: Particular requirements for arc furnace  
installations  
(IEC 60519-4:2021)**

Sécurité dans les installations destinées au traitement  
électrothermique et électromagnétique - Partie 4: Exigences  
particulières pour les installations de fours à arc  
(IEC 60519-4:2021)

Sicherheit in Elektrowärmeanlagen und Anlagen für  
elektromagnetische Bearbeitungsprozesse - Teil 4:  
Besondere Bestimmungen für Lichtbogenofenanlagen  
(IEC 60519-4:2021)

This European Standard was approved by CENELEC on 2022-01-19. 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 CEN-CENELEC Management Centre or to any CENELEC member.

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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

**EN IEC 60519-4:2022 (E)****European foreword**

The text of document 27/1141/FDIS, future edition 5 of IEC 60519-4, prepared by IEC/TC 27 "Industrial electroheating and electromagnetic processing" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60519-4:2022.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022-10-19
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2025-01-19

This document supersedes EN 60519-4:2013 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document is read in conjunction with EN IEC 60519-1.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

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The text of the International Standard IEC 60519-4:2021 was approved by CENELEC as a European Standard without any modification. SIST EN IEC 60519-4:2022

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

- |                      |   |
|----------------------|---|
| IEC 60076 (series)   | NOTE Harmonized as EN 60076 (series)            |
| IEC 60146-1 (series) | NOTE Harmonized as EN 60146-1 (series)          |
| IEC 60676:2011       | NOTE Harmonized as EN 60676:2012 (not modified) |
| IEC 60683:2011       | NOTE Harmonized as EN 60683:2012 (not modified) |
| IEC 61378 (series)   | NOTE Harmonized as EN 61378 (series)            |
| IEC 62477-2          | NOTE Harmonized as EN IEC 62477-2               |

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu).

The Annex ZA of Part 1 is applicable except as follows:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
<b>Replacement:</b>				
IEC 61936-1	2021	Power installations exceeding 1 kV AC and 1,5 kV DC - Part 1: AC	EN IEC 61936-1	2021
<b>Additions:</b>				
IEC 60060-3	-	High voltage test techniques - Part 3: Definitions and requirements for on-site testing	EN 60060-3	-
IEC 60519-1	2020	Safety in installations for electroheating and electromagnetic processing - Part 1: General requirements	EN IEC 60519-1	2020
ISO 13577-1	2016	Industrial furnaces and associated processing equipment - Safety - Part 1: General requirements	-	-
ISO 13578	2017	Industrial furnaces and associated processing equipment - Safety requirements for machinery and equipment for production of steel by electric arc furnaces	-	-

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IEC 60519-4

Edition 5.0 2021-12

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



iTeh STANDARD

**Safety in installations for electroheating and electromagnetic processing –  
Part 4: Particular requirements for arc furnace installations**

**Sécurité dans les installations destinées au traitement électrothermique et  
électromagnétique –**

**Partie 4: Exigences particulières pour les installations de fours à arc**

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ELECTROTECHNICAL  
COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SAFETY IN INSTALLATIONS FOR ELECTROHEATING  
AND ELECTROMAGNETIC PROCESSING –****Part 4: Particular requirements for arc furnace 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.

IEC 60519-4 has been prepared by IEC technical committee 27: Industrial electroheating and electromagnetic processing. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2013. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) the structure has been redrafted according to IEC 60519-1:2020;
- b) the scope and object have been redrafted;
- c) the terms and definitions, normative references and bibliography have been updated and completed;
- d) the requirements have been redrafted according to IEC 60519-1:2020;
- e) all provisions have been redrafted and the text is more concise with respect to submerged arc furnace installations;

- f) the annexes have been restructured, with respect to details concerning high voltage designs and non-electrical issues, however to be aware of in those installations;
- g) the aspect of noise has been removed from the scope;
- h) the EMC requirements have been clarified;
- i) risk classification of hazards have been based on emission;
- j) the boundaries to ISO 13577 (all parts) and ISO 13578 have been clarified.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
27/1141/FDIS	27/1143/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

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 standard supplement or modify the corresponding clauses of IEC 60519-1:2020 (*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.

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 have been defined in Clause 3: in bold type.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under [webstore.iec.ch](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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## INTRODUCTION

This fifth edition of IEC 60519-4 is a product safety publication and is intended to:

- include all types of installations or equipment that are in the scope of IEC TC 27/MT 21 dealing with **arc furnace** installations;
- give requirements on electrical safety, **touch currents**, electric fields, magnetic fields and radiation;
- give means for verification of the requirements;
- make extensive use of the standards developed by IEC committees with horizontal or group safety functions and of relevant ISO standards, most of them being developed by ISO TC 244;
- include all material, references and requirements suitable for risk assessment and list of significant hazards.

This document addresses mainly **manufacturers** making made-to-order equipment on a single project base. The **manufacturer** is well aware that it is his responsibility to make equipment safe through adequate risk reduction and it is the responsibility of the **user** to assess **exposure** of the **operator** in line with applicable health and safety regulations. Looking at projects providing single pieces of equipment or single installations, this clear division of responsibilities tends to blur, caused by inter alia:

- development of the process (**normal operation**) through the **manufacturer** and **user**,
- shared definition of working procedures for the **operator** by the **manufacturer** and **user**,
- the scope of delivery often including all protective means,
- individual sales contracts where **users** require an assessment of **exposure** through the **manufacturer**.

Thus, this document provides information on electrical hazards and limits where relevant, despite being well aware that this is exceeding the scope of a product standard.

Annexes I and J provide orientation with respect to the application of ISO 13577-1 in combination with this document.

The rated voltage of an **arc furnace** Installation can be in the range of low voltage or high voltage; details are given in 4.2.

This document presumes that the installation or equipment is operated and maintained only by personnel consisting of **skilled** or **instructed persons**.

This document is intended for verifying whether the **arc furnace** installation meets the safety requirements of this document through design, site acceptance tests, routine tests or inspection.