

Svenska Elektriska Kommissionen, SEK

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Industriella elvärmeanläggningar – Säkerhet – Del 1: Allmänna fordringar

*Safety in electroheat installations –
Part 1: General requirements*

Som svensk standard gäller europastandarden EN 60519-1:2003. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60519-1:2003.

Nationellt förord

Europastandarden EN 60519-1:2003

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60519-1, Third edition, 2003 - Safety in electroheat installations - Part 1: General requirements**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare utgiven svensk standard SS-EN 60519-1, utgåva 1, 1994, gäller ej fr o m 2006-10-01.

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

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Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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EUROPEAN STANDARD

EN 60519-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2003

ICS 25.180.10

Supersedes EN 60519-1:1993

English version

Safety in electroheat installations
Part 1: General requirements
(IEC 60519-1:2003)

Sécurité dans les installations
électrothermiques
Partie 1: Exigences générales
(CEI 60519-1:2003)

Sicherheit in Elektrowärmeanlagen
Teil 1: Allgemeine Anforderungen
(IEC 60519-1:2003)

This European Standard was approved by CENELEC on 2003-10-01. 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.

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, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, 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 document 27/358/FDIS, future edition 3 of IEC 60519-1, prepared by IEC TC 27, Industrial electroheating equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60519-1 on 2003-10-01.

This European Standard supersedes EN 60519-1:1993.

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) 2004-07-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2006-10-01

Significant technical changes with respect to EN 60519-1:1993 are as follows:

- the scope is now extended to cover also voltage band 3 equipment with rated voltage not exceeding 3 600 V a.c. or 5 000 V d.c.; the relevant provisions for such equipment have been added in clauses on, for example protection against electric shock, equipotential bonding or maintenance work;
- requirements concerning equipotential bonding have been essentially modified and introduced in a separate clause, based on the actual relevant provisions of EN 60204-1;
- general provisions on the impact of electromagnetic effects have been given;
- information concerning technical documentation has been modified;
- a bibliography has been added.

General test methods for industrial electroheating installations are specified in EN 60398:1999.

Additional information on non-electrical hazards possibly arising from the utilization of industrial electroheat equipment may be taken from EN 746-1 (see Bibliography), which specifies common safety requirements for industrial thermoprocessing equipment, as well as of an electrical and of a non-electrical kind.

Annexes designated "normative" are part of the body of the standard.
In this standard, annex ZA is normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60519-1:2003 was approved by CENELEC as a European Standard without any modification.

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

IEC 60398	NOTE	Harmonized as EN 60398:1999 (not modified).
IEC 61000-3-2	NOTE	Harmonized as EN 61000-3-2:2000 (modified).
IEC 61000-3-3	NOTE	Harmonized as EN 61000-3-3:1995 (not modified).
IEC 61000-3-11	NOTE	Harmonized as EN 61000-3-11:2000 (not modified).
IEC 61000-6-2	NOTE	Harmonized as EN 61000-6-2:2001 (modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-195	1998	International Electrotechnical Vocabulary (IEV) Chapter 195: Earthing and protection against electric shock	-	-
A1	2001		-	-
IEC 60050-521	2002	Part 521: Semiconductor devices and integrated circuits	-	-
IEC 60050-826	1982	Chapter 826: Electrical installations of buildings		
+ A1	1990			
+ A2	1995			
+ A3	1999		HD 384.2 S2	2001
IEC 60050-841	1983	Chapter 841: Industrial electroheating	-	-
IEC 60071-1	- ¹⁾	Insulation co-ordination Part 1: Definitions, principles and rules	EN 60071-1	1995 ²⁾
IEC 60110-1	1998	Power capacitors for induction heating installations Part 1: General	EN 60110-1	1998
IEC 60204-1	1997	Safety of machinery - Electrical equipment of machines Part 1: General requirements	EN 60204-1 + corr. September	1997 1998
IEC 60364-1	- ¹⁾	Electrical installations of buildings Part 1: Fundamental principles, assessment of general characteristics, definitions	HD 384.1 S2	2001 ²⁾
IEC 60364-4-41 (mod)	- ¹⁾	Part 4-41: Protection for safety - Protection against electric shock	HD 384.4.41 S2 + A1	1996 ²⁾ 2002

1) Undated reference.

2) Valid edition at date of issue.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60364-4-42 (mod)	- ¹⁾	Part 4-42: Protection for safety -- Protection against thermal effects	HD 384.4.42 S1 + A1 + A2	1985 ²⁾ 1992 1994
IEC 60364-4-43 (mod)	- ¹⁾	Part 4-43: Protection for safety - Protection against overcurrent	HD 384.4.43 S2	2001 ²⁾
IEC 60364-5-53	- ¹⁾	Part 5-53: Selection and erection of electrical equipment - Isolation, switching and control	-	-
IEC 60364-5-54 (mod)	- ¹⁾	Part 5-54: Selection and erection of electrical equipment - Earthing arrangements, protective conductors and protective bonding conductors	HD 384.5.54 S1	1988 ²⁾
IEC 60417	database	Graphical symbols for use on equipment	-	-
IEC 60446	- ¹⁾	Basic and safety principles for man- machine interface, marking and identification - Identification of conductors by colours or numerals	EN 60446	1999 ²⁾
IEC 60529	- ¹⁾	Degrees of protection provided by enclosures (IP Code)	EN 60529	1991 ²⁾
IEC 60664-1	- ¹⁾	Insulation coordination for equipment within low-voltage systems Part 1: Principles, requirements and tests	EN 60664-1	2003 ²⁾
CISPR 11 (mod)	- ¹⁾	Industrial scientific and medical (ISM) radio-frequency equipment - Radio disturbance characteristics - Limits and methods of measurement	EN 55011 + A1 + A2	1998 ²⁾ 1999 2002
ISO 7000	- ¹⁾	Graphical symbols for use on equipment - Index and synopsis	-	-

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SAFETY IN ELECTROHEAT INSTALLATIONS –

Part 1: General requirements

1 General

1.1 Scope

This part of IEC 60519 is applicable to industrial electroheat installations, which may comprise electroheat equipment in the voltage range up to 3 600 V a.c. or 5 000 V d.c., and deals with the general safety requirements.

Where requirements given in this standard differ from those given in other IEC publications, an equivalent degree of safety shall be ensured.

The present requirements apply to industrial electroheat and associated treatment installations such as:

- direct arc furnaces;
- submerged arc furnaces;
- equipment for arc heating (other than arc furnaces);
- electroslag remelting furnaces;
- plasma equipment;
- induction melting furnaces;
- equipment for induction heating;
- equipment for direct resistance heating;
- equipment for indirect resistance heating;
- equipment for infra-red radiation heating;
- equipment for dielectric heating;
- equipment with electron guns;
- microwave heating equipment;
- industrial laser equipment;
- electroheat surface treatment equipment.

NOTE The list is intended to present some typical examples of installations covered by this standard. It is not exhaustive.

This standard is not applicable to electric cooking and heating equipment for household or welding purposes, nor does it apply to space heating of any kind.

This standard refers to the normal operation of industrial electroheat installations; it is also intended to ensure the safety of persons in the case of abnormal operation and when faults occur in electroheat installations. Inspection, commissioning, utilization and maintenance are dealt with in Clause 16.

This standard assumes that the installations are operated and maintained by skilled or instructed persons according to 3.1.8 and 3.1.9.