SVENSK STANDARD SS-EN 60519-1

Fastställd	Utgåva	Sida	Ansvarig kommitté
2011-05-04	3	1 (1+34)	SEK TK 27

Industriella elvärmeanläggningar – Säkerhet – Del 1: Allmänna fordringar

Safety in electroheating installations – Part 1: General requirements

Som svensk standard gäller europastandarden EN 60519-1:2011. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60519-1:2011.

Nationellt förord

Europastandarden EN 60519-1:2011

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60519-1, Fourth edition, 2010 - Safety in electroheating installations - Part 1: General requirements**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60519-1, utgåva 2, 2003, gäller ej fr o m 2014-01-03.

ICS 25.180.10

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
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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.

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SEK är Sveriges röst i standardiseringsarbetet inom elområdet

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Stora delar av arbetet sker internationellt

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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.

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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

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60519-1

January 2011

ICS 25.180.10

Supersedes EN 60519-1:2003

English version

Safety in electroheating installations - Part 1: General requirements

(IEC 60519-1:2010)

Sécurité dans les installations électrothermiques - Partie 1: Exigences générales (CEI 60519-1:2010)

Sicherheit in Elektrowärmeanlagen - Teil 1: Allgemeine Anforderungen (IEC 60519-1:2010)

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 60519-1:2011 E

SEK Svensk Elstandard

Foreword

The text of document 27/770/FDIS, future edition 4 of IEC 60519-1, prepared by IEC TC 27, Industrial electroheating, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60519-1 on 2011-01-03.

This European Standard supersedes EN 60519-1:2003.

The main technical changes with respect to EN 60519-1:2003 are as follows:

– scope and object have been modified, voltage limits and classification removed;

– terms/definitions, Annex ZA and bibliography have been updated and completed;

– Clause 4 on classification of equipment according to process frequency has been modified;

– Clause 5 (*General requirements*) has been redrafted and new provisions have been added (e.g. relating to single fault conditions and EMF issues), following the recommendations of IEC Guide 104;

– Clause 8 has been redrafted, the contents of subclauses 8.2 and 8.3 has been moved to a new normative Annex A and 8.4 has been deleted;

– a new Clause 12 (*Protection against other hazards*) has been added;

– clauses dealing with marking and documentation have been amended.

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

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)	2011-10-03
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2014-01-03

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60519-1:2010 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 60398:1999	NOTE	Harmonized as EN 60398:1999 (not modified).
IEC 61000-3-2	NOTE	Harmonized as EN 61000-3-2.
IEC 61000-3-3	NOTE	Harmonized as EN 61000-3-3.
IEC 61000-3-11	NOTE	Harmonized as EN 61000-3-11.
IEC 61000-6-2	NOTE	Harmonized as EN 61000-6-2.
IEC 62311:2007	NOTE	Harmonized as EN 62311:2008 (modified).
ISO 12100-1:2003	NOTE	Harmonized as EN ISO 12100-1:2003 (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

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

Publication	Year	Title	EN/HD	Year
IEC 60050-841	2004	International Electrotechnical Vocabulary (IEV) - Part 841: Industrial electroheat	-	-
IEC 60071-1	-	Insulation co-ordination - Part 1: Definitions, principles and rules	EN 60071-1	-
IEC 60110-1	1998	Power capacitors for induction heating installations - Part 1: General	EN 60110-1	1998
IEC 60204-1 (mod) + A1	2005 2008	Safety of machinery - Electrical equipment of machines - Part 1: General requirements	EN 60204-1 + corr. February + A1	2006 2010 2009
IEC 60204-11	-	Safety of machinery - Electrical equipment of machines - Part 11: Requirements for HV equipment for voltages above 1 000 V a.c. or 1 500 V d.c. and not exceeding 36 kV	EN 60204-11	-
IEC 60364-1 (mod)	2005	Low-voltage electrical installations - Part 1: Fundamental principles, assessment of general characteristics, definitions	HD 60364-1	2008
IEC 60364-4-41 (mod)	-	Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41	-
IEC 60364-4-42	-	Low voltage electrical installations - Part 4-42: Protection for safety - Protection against thermal effects	HD 60364-4-42	-
IEC 60364-4-43 (mod)	-	Low voltage electrical installations - Part 4-43: Protection for safety - Protection against overcurrent	HD 60364-4-43	-
IEC 60364-5-53	-	Electrical installations of buildings - Part 5-53: Selection and erection of electrical equipment - Isolation, switching and control	-	-
IEC 60364-5-54 (mod)	-	Electrical installations of buildings - Part 5-54: Selection and erection of electrical equipment - Earthing arrangements, protective conductors and protective bonding conductors	HD 60364-5-54	-
IEC 60417	-	Graphical symbols for use on equipment	-	-

Publication	Year	Title	EN/HD	Year
IEC 60446	-	Basic and safety principles for man-machine interface, marking and identification - Identification of conductors by colours or alphanumerics	EN 60446	-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	-	-
IEC 60664-1	-	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	-
IEC 61140	-	Protection against electric shock - Common aspects for installation and equipment	EN 61140	-
IEC 61936-1 (mod)	-	Power installations exceeding 1 kV a.c. - Part 1: Common rules	EN 61936-1	-
CISPR 11 (mod)	-	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement	EN 55011	-
ISO 3864-1	-	Graphical symbols - Safety colours and safety signs - Part 1: Design principles for safety signs in workplaces and public areas	-	-
ISO 7000	-	Graphical symbols for use on equipment - Index and synopsis	-	-

CONTENTS

INTRODUCTION

International Standard IEC 60519 *Safety in electroheating installations* consists of several parts. Part 1 comprises clauses of a general character and provisions common to various types of industrial electroheating installations or equipment. Subsequent parts of the IEC 60519 series (hereinafter called Particular Requirements) contain specific provisions for particular types of electroheating installations or equipment.

Part 1: *General requirements*

Part 2: *Particular requirements for resistance heating equipment*

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

Part 4: *Particular requirements for arc furnace installations*

Part 5: *Specifications for safety in plasma installations*

Part 6: *Specifications for safety in industrial microwave heating equipment*

Part 7: *Particular requirements for installations with electron guns*

Part 8: *Particular requirements for electroslag remelting furnaces*

Part 9: *Particular requirements for high-frequency dielectric heating installations*

Part 10: *Particular requirements for electrical resistance trace heating systems for industrial and commercial applications*

Part 11: *Particular requirements for installations using the effect of electromagnetic forces on liquid metals*

Part 21: *Particular requirements for resistance heating equipment – Heating and melting glass equipment*

NOTE Additional parts covering particular industrial electroheating installations or equipment may be prepared in the future.

SAFETY IN ELECTROHEATING INSTALLATIONS –

Part 1: General requirements

1 Scope and object

This part of IEC 60519 specifies the general safety requirements applicable to industrial electroheating installations.

In case these requirements differ from those of other IEC publications, an equivalent degree of safety is ensured.

The requirements apply to industrial installations, intended for electroheating and electroheat based treatment technologies, with the possible use of the following equipment:

– equipment for direct and indirect resistance heating;
– equipment for electric resistance trace heating;
– equipment for induction heating;
– equipment using the effect of EM forces on liquid metals;
– equipment for arc heating, including submerged arc heating;
– equipment for electroslag remelting;
– equipment for plasma heating;
– equipment for microwave heating;
– equipment for dielectric heating;
– equipment for electron beam heating;
– equipment for laser heating;
– equipment for infrared radiation heating.

NOTE 1 The list presents typical examples of equipment used in installations covered by this standard and is not exhaustive.

This standard is not applicable for heating appliances for household (e.g. electric cooking), laboratory or medical applications or for welding equipment, if covered by other particular standards, nor does it apply to any kind of space heating.

This standard refers to normal operation of industrial electroheating installations. It is intended to ensure the safety of persons also in the case of abnormal operation and when faults occur in electroheating installations. This standard presumes that the installations are operated and maintained only by personnel consisting of instructed or skilled persons, respectively.

The object of this standard is to specify the general safety requirements for electroheating installations. These safety requirements concern the protection of persons and the environment against dangers of electrical origin and also against certain dangers of non-electrical origin, common to all types of equipment and installations.

Certain clauses of this standard concern not only safety of personnel but also protection of the environment.

The overall safety requirements result from the joint application of the general requirements specified in this standard and Particular Requirements concerning the specific industrial

application of electroheat. These Particular Requirements supplement, modify or replace the general requirements.

The Particular Requirements cover particular safety relevant features such as high voltages and electric fields or high currents and magnetic fields, also with respect to the frequencies.

NOTE 2 Information on non-electrical hazards possibly arising from the utilization of industrial electroheating equipment may also be taken from European Standard EN 746-1 (see Bibliography), which specifies common safety requirements for industrial thermoprocessing equipment.

General test methods for industrial electroheating installations are specified in IEC 60398.

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 – Part 841: Industrial electroheat*

IEC 60071-1, *Insulation co-ordination – Part 1: Definitions, principles and rules*

IEC 60110-1:1998, *Power capacitors for induction heating installations – Part 1: General*

IEC 60204-1:2005[1], *Safety of machinery – Electrical equipment of machines – Part 1: General requirements*

Amendment 1 (2008)

IEC 60204-11, *Safety of machinery – Electrical equipment of machines – Part 11: Requirements for HV equipment for voltages above 1 000 V a.c. or 1 500 V d.c. and not exceeding 36 kV*

IEC 60364-1:2005, *Low-voltage electrical installations – Part 1: Fundamental principles, assessment of general characteristics, definitions*

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

IEC 60364-4-42, *Low-voltage electrical installations – Part 4-42: Protection for safety – Protection against thermal effects*

IEC 60364-4-43, *Low-voltage electrical installations – Part 4-43: Protection for safety – Protection against overcurrent*

IEC 60364-5-53, *Electrical installations of buildings – Part 5-53: Selection and erection of electrical equipment – Isolation, switching and control*

IEC 60364-5-54, *Electrical installations of buildings – Part 5-54: Selection and erection of electrical equipment – Earthing arrangements, protective conductors and protective bonding conductors*

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1 There is a consolidated edition 5.1 (2009) that includes IEC 60204-1 (2005) and its amendment 1 (2008).

IEC 60417, *Graphical symbols for use on equipment*

IEC 60446, *Basic and safety principles for man-machine interface, marking and identification – Identification of conductors by colours or alphanumerics*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60664-1, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 61140, *Protection against electric shock – Common aspects for installation and equipment*

IEC 61936-1, *Power installations exceeding 1 kV a.c. – Part 1: Common rules*

CISPR 11, *Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement*

ISO 3864-1*, Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs in workplaces and public areas*

ISO 7000, *Graphical symbols for use on equipment – Index and synopsis*