

Svenska Elektriska Kommissionen, SEK

Fastställt	Utgåva	Sida	Ingår i
2005-12-19	2	1 (1+13)	SEK Område 27

© Copyright SEK. Reproduction in any form without permission is prohibited.

Industriella elvärmeanläggningar – Säkerhet – Del 9: Tilläggsfordringar för högfrekvensinstallationer

*Safety in electroheat installations –**Part 9: Particular requirements for high-frequency dielectric heating installations*

Som svensk standard gäller europastandarden EN 60519-9:2005. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60519-9:2005.

Nationellt förord

Europastandarden EN 60519-9:2005

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60519-9, Second edition, 2005 - Safety in electroheat installations - Part 9: Particular requirements for high-frequency dielectric heating installations**

utarbetad inom International Electrotechnical Commission, IEC:

Standarden skall användas tillsammans med SS-EN 60519-1, utgåva 2, 2003.

Tidigare fastställd svensk standard SS-EN 60519-9, utgåva 1, 1996, gäller ej fr o m 2008-10-01.

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

Svenska Elektriska Kommissionen, SEK, svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

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.

SEK

Box 1284
164 29 Kista
Tel 08-444 14 00
www.sekom.se

EUROPEAN STANDARD

EN 60519-9

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2005

ICS 25.180.10

Supersedes EN 60519-9:1995

English version

Safety in electroheat installations
Part 9: Particular requirements for high-frequency
dielectric heating installations
(IEC 60519-9:2005)

Sécurité dans les installations
électrothermiques
Partie 9: Exigences particulières
pour les installations de chauffage
diélectrique à haute fréquence
(CEI 60519-9:2005)

Sicherheit in Elektrowärmeanlagen
Teil 9: Besondere Anforderungen
an kapazitive Hochfrequenz-
Erwärmungsanlagen
(IEC 60519-9:2005)

This European Standard was approved by CENELEC on 2005-10-01. 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, 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 27/473/FDIS, future edition 2 of IEC 60519-9, prepared by IEC TC 27, Industrial electroheating equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60519-9 on 2005-10-01.

This part of EN 60519 is to be used in conjunction EN 60519-1:2003. It is intended to specify particular requirements for high-frequency dielectric heating installations.

This European Standard supersedes EN 60519-9:1995.

The significant changes with respect to EN 60519-9:1995 are as follows:

- requirements for the protection against direct contact have been revised;
- the structure has been adjusted to the latest ISO/IEC Directives, in particular the scope, object and introduction of normative references;
- definitions have been brought into line with 60050-841:2004.

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) 2006-07-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2008-10-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60519-9:2005 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60204-1 NOTE Harmonized as EN 60204-1:1997 (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 Where 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 60050-841	- ¹⁾	International electrotechnical vocabulary Part 841: Industrial electroheat	-	-
IEC 60519-1	2003	Safety in electroheat installations Part 1: General requirements	EN 60519-1	2003

¹⁾ Undated reference.

CONTENTS

1	Scope and object.....	9
2	Normative references	9
3	Terms and definitions	9
4	Protective measures in the dielectric heating generator	11
4.1	General description	11
4.2	Protection against direct contact	11
4.2.1	General	11
4.2.2	Means of access to parts under voltage band 2	11
4.2.3	Means of access to parts under voltage band 3	11
4.2.4	Means of access to parts under high-frequency voltage	13
4.2.5	Warning plates	13
4.3	Other protective measures	13
4.4	Temperature rise – Protection against fire	15
4.5	Clearances and creepage distances	15
4.6	Internal electrical connections	15
4.7	Capacitors	15
4.8	Cooling.....	17
4.9	Overload protection	17
4.10	Radio interference suppression	17
5	Protective measures for use in dielectric applicators.....	19
5.1	Moving devices containing mechanical parts	19
5.2	Processing charge of flammable substances	19
5.3	Protection against indirect contact.....	19
5.4	Other protective measures	21
6	Tests for protective measures.....	21
7	Marking	23
	Bibliography.....	25

SAFETY IN ELECTROHEAT INSTALLATIONS –

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

1 Scope and object

This part of IEC 60519 is applicable to industrial high-frequency dielectric heating installations for the purpose of thermal applications such as melting, drying, welding, insect extermination and gluing of partially or non-conductive materials such as plastics, wood, rubber, textiles, glass, ceramic, paper, bamboo, foodstuffs, etc. in both normal and protective atmospheres, using for example inert gases or vacuum.

This standard relates to high-frequency dielectric heating installations with nominal frequency in the range from 1 MHz to 300 MHz with rated useful output power greater than 50 W.

NOTE In accordance with CISPR 11, there are preferred frequencies designated by the International Telecommunication Union for use as fundamental ISM frequencies.

The voltage band according to IEC 60519-1 relates to the mains supply voltage. In some circuits of the dielectric heating installation, the d.c., a.c. or radio-frequency voltages can have greater values (e.g. in the generator due to a built-in transformer).

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, *International Electrotechnical Vocabulary – Part 841: Industrial electroheat*

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

