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Industriell elvärme – Provning av infrastrålare

*Industrial electroheating equipment –
Test methods for infrared emitters*

Som svensk standard gäller europastandarden EN 62798:2014. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62798:2014.

Nationellt förord

Europastandarden EN 62798:2014

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 62798, First edition, 2014 - Industrial electroheating equipment - Test methods for infrared emitters**

utarbetad inom International Electrotechnical Commission, IEC.

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English Version

**Industrial electroheating equipment -
Test methods for infrared emitters
(IEC 62798:2014)**

Chauffage électrique industriel - Méthodes d'essais des
émetteurs de rayonnement infrarouge
(CEI 62798:2014)

Industrielle Elektrowärmeeinrichtungen - Prüfverfahren für
Infrarotstrahler
(IEC 62798:2014)

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 27/938/CDV, future edition 1 of IEC 62798, prepared by IEC/TC 27 "Industrial electroheating and electromagnetic processing" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62798:2014.

The following dates are fixed:

- latest date by which the document has to be (dop) 2015-06-29
implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2017-09-29
standards conflicting with the
document have to be withdrawn

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Endorsement notice

The text of the International Standard IEC 62798:2014 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 60519-1:2010	NOTE	Harmonized as EN 60519-1:2011 (not modified).
IEC 62471:2006	NOTE	Harmonized as EN 62471:2008 (modified).
IEC 60079-0	NOTE	Harmonized as EN 60079-0.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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

NOTE 1 When 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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
		Methods of test for dense shaped refractory products - Part 11: Determination of resistance to thermal shock	EN 993-11	
IEC 60061-1	-	Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 1: Lamp caps	EN 60061-1	-
IEC 60061-2	-	Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 2: Lampholders	EN 60061-2	-
IEC 60061-3	-	Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 3: Gauges	EN 60061-3	-
IEC 60068-2-6	-	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-7	-	Basic environmental testing procedures - Part 2-7: Tests - Test Ga and guidance: Acceleration, steady state	EN 60068-2-7	-
IEC 60432-1 (mod)	1999	Incandescent lamps - Safety specifications -	EN 60432-1	2000
+A1	2005	Part 1: Tungsten filament lamps for domestic and similar general lighting purposes	+A1	2005
+A2	2011		+A2	2012
IEC 60519-12	-	Safety in electroheating installations - Part 12: Particular requirements for infrared electroheating installations	EN 60519-12	-
IEC 60682	1980	Standard method of measuring the pinch temperature of quartz-tungstenhalogen lamps	EN 60682	1993
+A1	1987			
+A2	1997		+A2	1997
IEC 62693	2013	Industrial electroheating installations - Test methods for infrared electroheating installations	EN 62693	2013

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INDUSTRIAL ELECTROHEATING EQUIPMENT –**Test methods for infrared emitters****FOREWORD**

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International Standard IEC 62798 has been prepared by IEC technical committee 27: Industrial electroheating and electromagnetic processing.

The text of this standard is based on the following documents:

CDV	Report on voting
27/938/CDV	27/942/RVC

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

INTRODUCTION

This standard on particular test methods for infrared electroheating emitters is one of TC 27 standards that describe test methods for various types of electroheating installations.

This standard is solely concerned with tests for infrared emitters. Tests that focus on the performance of infrared equipment or installations are covered by IEC 62693, *Industrial electroheating installations – Test methods for infrared electroheating installations*. The rationale for this separation is that infrared installations are usually manufactured by other companies than infrared emitters. Still, infrared emitters are a very important and distinct part of infrared installations and a set of tests that allow for proper characterisation, comparison of different infrared emitters is valuable to manufacturers of infrared installations.

The major guiding principle for this standard is to determine

- simple tests that define the basic characteristics of all infrared emitters and can be performed with the usual test and measuring equipment available to different kinds of companies, large or small;
- more complex tests that provide valuable extra information, but need a well-equipped laboratory.

INDUSTRIAL ELECTROHEATING EQUIPMENT –

Test methods for infrared emitters

1 Scope and object

This International Standard specifies test procedures, conditions and methods according to which the main parameters and the main operational characteristics of industrial infrared emitters are established.

A limitation of the scope of this standard is that the infrared emitters have a maximum spectral emission at longer wavelengths than 780 nm in air or vacuum, and are emitting wideband continuous spectra such as by thermal radiation or high pressure arcs.

IEC 60519-1:2010 [1]¹ defines infrared as optical radiation within the frequency range between about 400 THz and 300 GHz. This corresponds to the wavelength range between 780 nm and 1 mm in vacuum. Industrial infrared heating usually uses infrared sources with rated temperatures between 500 °C and 3 000 °C; the emitted radiation from these sources dominates in the wavelength range between 780 nm and 10 µm.

Industrial infrared emitters under the scope of this standard typically use the Joule effect for the conversion of electric energy in one or several sources into infrared radiation, which is emitted from one or several elements. Such infrared emitters are especially

- thermal infrared emitters in the form of tubular, plate-like or otherwise shaped ceramics with a resistive element inside;
- infrared quartz glass tube or halogen lamp emitters with a hot filament as a source;
- non-insulated elements made from molybdenum-disilicide, silicon-carbide, iron-chromium-aluminium alloys or comparable materials;
- wide-spectrum arc lamps.

This standard is not applicable to

- infrared emitters which are lasers or light-emitting diodes (LEDs);
- infrared emitters for use by the general public;
- infrared emitters for laboratory use.

Most of the tests described, especially the destructive tests, are for type testing.

The tests specified in this standard are intended to be used for evaluating or comparing the performance of emitters belonging to the same category.

Tests related to performance of industrial infrared electroheating installations are specified in IEC 62693:2013.

Most tests specified in this standard are applicable to wide-spectrum arc lamps, but not all.

¹ Numbers in square brackets refer to the Bibliography.

2 Normative references

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

IEC 60061-1, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 1: Lamp caps*

IEC 60061-2, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 2: Lampholders*

IEC 60061-3, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 3: Gauges*

IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-7, *Basic environmental testing procedures – Part 2-7: Tests – Test Ga and guidance: Acceleration, steady state*

IEC 60432-1:1999, *Incandescent lamps – Safety specifications – Part 1: Tungsten filament lamps for domestic and similar general lighting purposes*

IEC 60432-1:1999/AMD1:2005

IEC 60432-1:1999/AMD2:2011

IEC 60519-12, *Safety in electroheating installations – Part 12: Particular requirements for infrared electroheating installations*

IEC 60682:1980, *Standard method of measuring the pinch temperature of quartz-tungsten-halogen lamps*

IEC 60682:1980/AMD1:1987

IEC 60682:1980/AMD2:1997

IEC 62693:2013, *Industrial electroheating installations – Test methods for infrared electroheating installations*

EN 993-11, *Methods of test for dense shaped refractory products – Part 11: Determination of resistance to thermal shock*