



SLOVENSKI STANDARD
SIST EN 60683:2012

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Oprema za industrijsko električno ogrevanje - Preskusne metode za peči z zakritim oblokom

Industrial electroheating equipment - Test methods for submerged-arc furnaces

Industrielle Elektrowärmeanlagen - Prüfverfahren für Lichtbogen-Reduktionsöfen

Chauffage électrique industriel - Méthodes d'essai des fours à arc submergé

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Ta slovenski standard je istoveten z: EN 60683:2012

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25.180.10 Električne peči Electric furnaces

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60683

January 2012

ICS 25.180.10

Supersedes HD 599 S1:1992

English version

**Industrial electroheating equipment -
Test methods for submerged-arc furnaces
(IEC 60683:2011)**

Chauffage électrique industriel -
Méthodes d'essai des fours à arc
submergé
(CEI 60683:2011)

Industrielle Elektrowärmeanlagen -
Prüfverfahren für Lichtbogen-
Reduktionsöfen
(IEC 60683:2011)

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This European Standard was approved by CENELEC on 2011-11-23. 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.

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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 27/780/CDV, future edition 2 of IEC 60683, prepared by IEC/TC 27 "Industrial electroheating" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60683:2012.

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) 2012-08-23
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2014-11-23

This document supersedes HD 599 S1:1992.

EN 60683:2011 includes the following significant technical changes with respect to HD 599 S1:1992:

- Clause 1 (Scope and object) – the types of furnaces covered by this standard are more clearly defined.
- Clause 2 (Normative references) and Clause 3 (Terms and definitions) have been updated and completed.
- A new Clause 4 (Features of the SAF system) has been added; it mainly concentrates on the tests necessary for high voltage/high current electrical equipment in the installation.
- Clause 5 (Tests and general conditions) and Clause 6 (Technical tests) have been modified according to today's requirements for safe operation of a SAF.

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

Endorsement notice

The text of the International Standard IEC 60683:2011 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 60146-1-1:2009 NOTE Harmonized as EN 60146-1-1:2010 (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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60398	-	Industrial electroheating installations - General test methods	EN 60398	-
IEC 60519-1	2010	Safety in electroheating installations - Part 1: General requirements	EN 60519-1	2011
IEC 60519-4	-	Safety in electroheat installations - Part 4: Particular requirements for arc furnace installations	EN 60519-4	-

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Industrial electroheating equipment – Test methods for submerged-arc furnaces

Chauffage électrique industriel – Méthodes d'essai des fours à arc submergé

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL ELECTROHEATING EQUIPMENT –
TEST METHODS FOR SUBMERGED-ARC FURNACES**

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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International Standard IEC 60683 has been prepared by IEC technical committee 27: Industrial electroheating.

This second edition cancels and replaces the previous edition published in 1980 and constitutes a technical revision.

Significant technical changes with respect to the previous edition are as follows:

- Clause 1 (*Scope and object*) – the types of furnaces covered by this standard are more clearly defined.
- Clause 2 (*Normative references*) and Clause 3 (*Terms and definitions*) have been updated and completed.
- A new Clause 4 (*Features of the SAF system*) has been added; it mainly concentrates on the tests necessary for high voltage/high current electrical equipment in the installation.
- Clause 5 (*Tests and general conditions*) and Clause 6 (*Technical tests*) have been modified according to today's requirements for safe operation of a SAF.

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

CDV	Report on voting
27/780/CDV	27/797/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.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

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INDUSTRIAL ELECTROHEATING EQUIPMENT – TEST METHODS FOR SUBMERGED-ARC FURNACES

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 a submerged-arc furnace (SAF) with rated electrical power levels above 500 kVA are established.

This standard is applicable to SAF with one or more electrodes.

In order to determine further technical or economic assessments, additional tests may be necessary.

Tests for some special equipment for semiconductor converter controlled furnaces, such as controlled rectifiers or controlled a.c. converters, are covered by IEC 60146-1-1.

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 60398, *Industrial electroheating installations – General test methods*

<https://standards.iteh.ai/catalog/standards/sist/97d6fed8-9806-481d-9141-60683-2012>

IEC 60519-1:2010, *Safety in electroheating installations – Part 1: General requirements*

IEC 60519-4, *Safety in electroheat installations – Part 4: Particular requirements for arc furnace installations*

3 Terms and definitions

For the purposes of this document the terms and definitions given in IEC 600519-1:2010 and the following apply.

NOTE Refer to International Electrotechnical Vocabulary, IEC 60050, for general definitions. Terms relating to industrial electroheat are defined in IEC 60050-841.

3.1 active power

P

mean value of the instantaneous power *p* (in kW) taken under periodic conditions over one period of time *T* (in h):

$$P = \frac{1}{T} \int_0^T p \, dt$$

NOTE Active power instantaneous value (r.m.s.) measured at any time, including all phases.

[IEC 60050-131:2002, 131-11-42, modified]