

Industrial electroheating installations — Test methods for induction channel and induction crucible furnaces

The European Standard EN 62076:2006 has the status of a
British Standard

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National foreword

This British Standard was published by BSI. It is the UK implementation of EN 62076:2006. It is identical with IEC 62076:2006. It supersedes BS 7690:1993 and BS EN 60646:1999, which are withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PEL/27, Electroheating.

A list of organizations represented on PEL/27 can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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English version

**Industrial electroheating installations -
Test methods for induction channel
and induction crucible furnaces
(IEC 62076:2006)**

Installations électrothermiques
industrielles -
Méthodes d'essai
pour fours à induction à canal et
pour fours à induction à creuset
(CEI 62076:2006)

Industrielle Elektrowärmeanlagen -
Prüfverfahren für Induktionsrinnen- und
Induktionstiegelöfen
(IEC 62076:2006)

This European Standard was approved by CENELEC on 2006-10-01. 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.

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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 27/523/FDIS, future edition 1 of IEC 62076, prepared by IEC TC 27, Industrial electroheating equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62076 on 2006-10-01.

This European Standard supersedes HD 610 S1:1992 and EN 60646:1998.

The significant changes with respect to HD 610 S1:1992 and EN 60646:1998 are as follows:

- EN 60519-1:2003 has been taken into account;
- definitions have been brought into line with the second edition of IEC 60050-841;
- one additional test (5.8 Determination of the rated useful charge G_{nu}) has been introduced;
- informative Annex B with the list of symbols used in the standard has been added.

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) | 2007-07-01 |
| – latest date by which the national standards conflicting
with the EN have to be withdrawn | (dow) | 2009-10-01 |

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62076:2006 was approved by CENELEC as a European Standard without any modification.

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INDUSTRIAL ELECTROHEATING INSTALLATIONS – TEST METHODS FOR INDUCTION CHANNEL AND INDUCTION CRUCIBLE FURNACES

1 Scope and object

This International Standard applies to electrical installations comprising industrial induction channel furnaces and induction crucible furnaces for melting, holding and superheating.

Its object is the standardization of test methods to determine the essential parameters and technical characteristics of electroheat installations comprising furnaces of the type indicated above.

With the exception of the safety tests given in items a), b) and c) of 4.2.1, the list of tests given in this standard is neither mandatory nor restrictive. Tests may be selected from this list as required for the characterization and evaluation of a furnace. Additional tests may be carried out, preferably in agreement between the manufacturer and the user of the furnaces concerned.

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 60050-151, *International Electrotechnical Vocabulary (IEV) – Part 151: Electrical and magnetic devices*

IEC 60050-841:2004, *International Electrotechnical Vocabulary (IEV) – Part 841: Industrial electroheat*

IEC 60398:1999, *Industrial electroheating installations – General test methods*

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

IEC 60519-3, *Safety in electroheat installations – Part 3: Particular requirements for induction and conduction heating and induction melting installations*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-151, IEC 60050-841 (some of which are repeated below), IEC 60519-1 and IEC 60519-3, as well as the following, apply.

NOTE For definitions of terms from 3.12 to 3.24, see also the explanatory diagrams in Annex A. The symbols are also listed in Annex B.

3.1

electroheat installation with an induction channel furnace or induction crucible furnace
installation comprising induction channel furnace(s) or induction crucible furnace(s) and the electrical and mechanical equipment necessary for the operation and utilization of the furnace(s)

NOTE The electrical equipment comprises the auxiliary circuits, the control system and all electrical components including conductors and switchgear in the furnace power circuit situated after the supply disconnecting device.

3.2

induction crucible furnace

induction melting, holding or superheating furnace, in which the heat is generated directly in the charge, or in the crucible containing it, by means of one or more inductor coils arranged around the crucible

[IEV 841-27-32, modified]

3.3

crucible

container for the charge to be melted, made of refractory or electrical conducting materials, e.g. steel, copper or graphite

[IEV 841-22-50]

3.4

crucible furnace inductor

basic element of the induction crucible furnace, consisting of inductor coil(s) coaxially enclosing a crucible and usually of magnetic yokes or screens supported by a surrounding framework or metal casing

[IEV 841-27-59, modified]

3.5

crucible inductor coil

coil of induction melting equipment, carrying an alternating current and designed to create the magnetic field which induces currents in the charge or in a crucible of conductive material

3.6

induction channel furnace

induction melting, holding or superheating furnace consisting of one or more refractory lined chambers into which the charge to be heated or melted is placed and to which one or more channel inductors are attached

[IEV 841-27-30, modified]

3.7

channel inductor

channel furnace inductor

replaceable or fixed element of an induction channel furnace consisting of a core type inductor attached to the furnace chamber, comprising the channel inductor coils, the magnetic core, the shields, the casing and the channel made of refractory material

[IEV 841-27-57, modified]