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Cores made of soft magnetic materials - Measuring methods - Part 1: Generic specification (IEC 62044-1:2002)

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EUROPEAN STANDARD

**EN 62044-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2002

ICS 29.100.10

English version

**Cores made of soft magnetic materials -  
Measuring methods  
Part 1: Generic specification  
(IEC 62044-1:2002)**

Noyaux en matériaux magnétiques doux -  
Méthodes de mesure  
Partie 1: Spécification générique  
(CEI 62044-1:2002)

Kerne aus weichmagnetischen  
Werkstoffen -  
Messmethoden  
Teil 1: Fachgrundspezifikation  
(IEC 62044-1:2002)

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This European Standard was approved by CENELEC on 2002-07-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, 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 51/660/FDIS, future edition 1 of IEC 62044-1, prepared by IEC TC 51, Magnetic components and ferrite materials, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62044-1 on 2002-07-01.

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) 2003-04-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2005-07-01

Annexes designated "normative" are part of the body of the standard.  
In this standard, annex ZA is normative.  
Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 62044-1:2002 was approved by CENELEC as a European Standard without any modification.

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**Annex ZA**  
(normative)

**Normative references to international publications  
with their corresponding European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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 60068	Series	Environmental testing	EN 60068	Series

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Première édition  
First edition  
2002-05

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**Noyaux en matériaux magnétiques doux –  
Méthodes de mesure –**

**Partie 1:  
Spécification générique**

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**Part 1:  
Generic specification**

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

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For price, see current catalogue

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## CORES MADE OF SOFT MAGNETIC MATERIALS – MEASURING METHODS –

### Part 1: Generic specification

#### FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62044-1 has been prepared by IEC technical committee 51: Magnetic components and ferrite materials.

This standard cancels and replaces clauses 6.2 to 6.4 and Annexes A to D of IEC 60367-1 (1982). The remaining clauses of IEC 60367-1 will be replaced by IEC 62044-2 and IEC 62044-3 (2000).

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

FDIS	Report on voting
51/660/FDIS	51/677/RVD

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 3.

The committee has decided that this publication remains valid until 2006. At this date, in accordance with the committee's decision, the publication will be

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



# CORES MADE OF SOFT MAGNETIC MATERIALS – MEASURING METHODS –

## Part 1: Generic specification

### 1 Scope and object

This International standard applies to magnetic cores made of soft magnetic materials used in inductors, transformers and devices used to suppress electromagnetic interference.

This standard is to provide guidance for the specification of measuring methods for both magnetic and non-magnetic (for example, mechanical, electrical, etc.) properties.

This standard is limited to the general principles to be followed for the various possible test methods. For the magnetic properties, it should be considered that the measurement result using a measuring coil can be directly related to a specified parameter (for example inductance) of a magnetic component using the magnetic core. In this case, the measuring method should be chosen in order to obtain a good correlation with the corresponding magnetic component measurement results.

### 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.

<https://standards.iteh.ai/catalog/standards/sist/f7cddbce-dbc9-4c22-9514-12004/sist-en-62044-1-2004>  
IEC 60068 (all parts), *Environmental testing*

### 3 Environmental conditions

#### 3.1 General

The cores are magnetically conditioned in accordance with clause 4, if required, for a given measurement method. During the whole procedure, the core shall be protected against mechanical and magnetic disturbances. Condensation on measuring windings, which may occur at changing temperature, should be avoided.

#### 3.2 Ambient Temperature

Unless otherwise specified, the whole measurement procedure shall take place at a temperature within the range of standard atmospheric conditions for testing according to IEC 60068.

During the whole period of the measurement, however, the temperature shall not vary to such an extent as to have an appreciable effect on the measuring results. In some cases, this may necessitate the use of a temperature controlled chamber. The assembled cores with measuring coil and clamping devices shall be kept in this environment for a sufficient time to reach thermal equilibrium. The temperature during measurement shall be stated.

NOTE This subclause means that the measurements may be made at any temperature within the range of 15 °C to 35 °C but preferably at (25 ± 3) °C.