



IEC 63093-7

Edition 1.0 2018-03

INTERNATIONAL STANDARD

**Ferrite cores – Guidelines on dimensions and the limits of surface irregularities –
Part 7: EER-cores**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 29.100.10

ISBN 978-2-8322-5485-1

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references	6
3 Terms and definitions	6
4 Primary dimensions	6
4.1 General.....	6
4.2 Dimensions of EER-cores	7
4.2.1 Principal dimensions	7
4.2.2 Effective parameter and A_{\min} values	8
4.3 Dimensional limits for coil formers.....	8
5 Limits of surface irregularities	9
5.1 General.....	9
5.2 Chips and ragged edges	10
5.2.1 General.....	10
5.2.2 Chips and ragged edges on the mating surfaces (see Figure 4)	10
5.2.3 Chips and ragged edges on the other surfaces (see Figure 4)	10
5.3 Cracks	12
5.4 Flash	12
5.5 Pull-outs	12
5.6 Crystallites.....	13
5.7 Pores.....	14
Annex A (normative) Derived standards	15
Annex B (normative) Example of dimensions for gauges to check the dimensions of EER-cores meeting this primary standard	16
B.1 General.....	16
B.2 Procedure and requirements	16
Annex C (informative) Examples of allowable areas of chips.....	17
Bibliography.....	18
Figure 1 – Dimensions of EER-cores	7
Figure 2 – Essential dimensions of coil formers	8
Figure 3 – Examples of surface irregularities	9
Figure 4 – Chip locations for EER-cores	10
Figure 5 – Cracks and pull-out locations for EER-cores	12
Figure 6 – Crystallite location for EER-cores.....	13
Figure 7 – Pore location for EER-cores	14
Figure B.1 – Gauge dimensions	16
Table 1 – Dimensions of EER-cores.....	7
Table 2 – Effective parameter values of EER-cores	8

Table 3 – Dimensional limits for coil formers 9

Table 4 – Area and length reference for visual inspection 11

Table 5 – Limits for cracks 13

Table B.1 – Gauge dimensions 16

Table C.1 – Allowable areas of chips for EER-cores 17

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FERRITE CORES – GUIDELINES ON DIMENSIONS AND THE LIMITS OF SURFACE IRREGULARITIES –

Part 7: EER-cores

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.
- 2) The formal decisions or agreements of 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 IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 63093-7 has been prepared by IEC technical committee 51: Magnetic components, ferrite and magnetic powder materials.

This first edition cancels and replaces the first edition of IEC 62317-7 published in 2005. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to IEC 62317-7:

- a) IEC 63093-7 integrates IEC 62317-7 and IEC 60424-3;
- b) IEC 60424-3:2015, Table 2, has been included in Annex C as Table C.1.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
51/1217/FDIS	51/1226/RVD

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

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

A list of all parts in the IEC 63093 series, published under the general title *Ferrite cores – Guidelines on dimensions and the limits of surface irregularities* can be found on the IEC website.

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

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

A bilingual version of this publication may be issued at a later date.

FERRITE CORES – GUIDELINES ON DIMENSIONS AND THE LIMITS OF SURFACE IRREGULARITIES –

Part 7: EER-cores

1 Scope

This part of IEC 63093 specifies the dimensions that are of importance for mechanical interchangeability for a preferred range of EER-cores made of ferrite, the essential dimensions of coil formers to be used with them as well the effective parameter values to be used in calculations involving them, and gives guidelines on allowable limits of surface irregularities applicable to EER-cores.

This document is a specification useful in the negotiations between ferrite core manufacturers and customers about surface irregularities.

The use of “derived” standards which give more detailed specifications of component parts while still permitting compliance with this document is discussed in Annex A.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60205, *Calculation of the effective parameters of magnetic piece parts*

IEC 60401-1, *Terms and nomenclature for cores made of magnetically soft ferrites – Part 1: Terms used for physical irregularities*

IEC 60424-1, *Ferrite cores – Guidelines on the limits of surface irregularities – Part 1: General specification*