

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Ferrite cores – Guidelines on dimensions and the limits of  
surface irregularities –  
Part 1: General specification**

**Noyaux ferrites – Lignes directrices relatives aux dimensions  
et aux limites des irrégularités de surface –  
Partie 1: Spécification générale**



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## CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references .....	6
3 Terms and definitions .....	6
4 Dimension descriptions.....	7
5 Location and functions of core parts and surfaces .....	7
5.1 General.....	7
5.2 Mating surfaces .....	8
5.3 Centre post.....	8
5.4 Outer legs.....	8
5.5 Back, bottom surface and back surfaces .....	8
5.6 Wire-slot area .....	8
5.7 Wire-way area.....	9
5.8 Clamping recess area.....	9
6 Area and length reference for visual inspection .....	9
7 Examples of surface irregularities.....	11
8 Limits of surface irregularities.....	11
8.1 General.....	11
8.2 Chips and ragged edges .....	11
8.3 Cracks .....	11
8.4 Flash .....	11
8.5 Pull-outs .....	12
8.6 Pores.....	12
8.7 Crystallites.....	12
Annex A (informative) IEC 63093 series.....	13
Bibliography.....	14
Figure 1 – Location of main core parts and surfaces – Example of RM-core type .....	8
Figure 2 – Examples of surface irregularities .....	11
Table 1 – Area and length reference for visual inspection .....	10
Table A.1 – IEC 63093 series .....	13

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FERRITE CORES –  
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International Standard IEC 63093-1 has been prepared by IEC technical committee 51: Magnetic components, ferrite and magnetic powder materials.

This first edition cancels and replaces the second edition of IEC 60424-1 published in 2015 and the first edition of IEC 62317-1 published in 2007. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous editions of IEC 60424-1 and IEC 62317-1:

- a) this document integrates IEC 60424-1 and IEC 62317-1.

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

CDV	Report on voting
51/1309/CDV	51/1327/RVC

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 publication will be

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- withdrawn,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

## INTRODUCTION

Due to the method of manufacture and the physical nature of the products, ferrite cores can be expected to exhibit some degree of physical irregularities such as chips, ragged edges, cracks, flashing, and pull-outs.

The permissible extent of these surface irregularities will depend on the type, position and size of the defect and on the function of the core. Thus, in order to establish limits of surface irregularities for a given series of ferrite cores, for example RM-cores, pot-cores, E-cores, U-cores and ring-cores, a particular specification should be prepared for each, setting out in detail the permissible extent of the various types of irregularities.

All surfaces of the core should be clean and free from loose ferrite particles or any other foreign matter. This is more critical for mating surfaces that should make good contact with one another. Stains, discolorations, surface crazing or crystallization are acceptable if they do not affect the normal performance of the core. The irregularities described below are considered as being detectable without the use of any magnifying equipment.

The limits of surface irregularities are set for control of the cosmetic appearance, and not for control of the magnetic performance. Surface irregularities do not substantially affect core magnetic function, nor do they affect reliability. Reliability should be assessed for wound magnetics, rather than for cores alone. See IEC 60401-3 for more details concerning the reliability of ferrite cores and devices built with them.

A list of the IEC 63093 series is shown in Annex A.

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

## **Part 1: General specification**

### **1 Scope**

This part of IEC 63093 specifies the dimensions and allowable limits of surface irregularities of ferrite cores.

It is intended that this document includes ferrite cores which are widely used and referenced in industry, either because they are included in national standards, or because they are seen to have broad-based use in industry. Where applicable, it is intended that the existing industrial name for each standard part appears with the part within this series.

It is intended that this document excludes ferrite cores which are specialty cores with limited use. Also, special cores which are only marginal variations upon standard cores are excluded.

A ferrite core produced by only one or two suppliers can generally be considered a specialty part, and not suitable as a standard core within this series. A ferrite core produced by three or more competing manufacturers can generally be considered to be a candidate to be included in this series.

IEC publishes electrical standards for families of ferrite cores, as well as this series of dimensional standards for families of ferrite cores. Modifications to the ferrite cores listed in one type of standard are reflected in the other type.

This document is considered as a general specification useful in the dialogue between ferrite core suppliers and users about surface irregularities.

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

IEC 60401-2, *Terms and nomenclature for cores made of magnetically soft ferrites – Part 2: Reference of dimensions*

### **3 Terms and definitions**

For the purposes of this document, the terms and definitions given in IEC 60401-1 and the following apply.