SLOVENSKI STANDARD
SIST EN IEC 63093-4:2019

01-september-2019

Nadomešča:
SIST EN 60424-2:2016
SIST EN 62317-4:2006
SIST EN 62317-4:2006/AC:2016-09:2018

Feritna jedra - Smernice o merah in mejnih vrednostih površinskih nepravilnosti - 4. del: RM-jedra (IEC 63093-4:2019)

Ferrite cores - Guidelines on dimensions and the limits of surface irregularities - Part 4: RM-cores (IEC 63093-4:2019)

Ferrite cores - Guidelines on dimensions and the limits of surface irregularities - Part 4: RM-cores

Ta slovenski standard je istoveten z: **EN IEC 63093-4:2019**

ICS:

29.100.10 Magnetne komponente Magnetic components

SIST EN IEC 63093-4:2019 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 63093-4

April 2019

ICS 29.100.10

Supersedes EN 60424-2:2016, EN 62317-4:2005

English Version

Ferrite cores - Guidelines on dimensions and the limits of surface irregularities - Part 4: RM-cores (IEC 63093-4:2019)

Noyaux ferrites - Lignes directrices relatives aux dimensions et aux limites des irrégularités de surface - Partie 4: Noyaux RM (IEC 63093-4:2019)

Ferritkerne - Richtlinien zu Maßen und Grenzen von Oberflächenbeschädigungen - Teil 4: RM-Kerne (IEC 63093-4:2019)

This European Standard was approved by CENELEC on 2019-04-12. 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 51/1265/FDIS, future edition 1 of IEC 63093-4, prepared by IEC/TC 51 "Magnetic components, ferrite and magnetic powder materials" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 63093-4:2019.

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) 2020-01-12
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-04-12

This document supersedes EN 60424-2:2016, EN 62317-4:2005.

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

Endorsement notice

The text of the International Standard IEC 63093-4:2019 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60424-2:2015	NOTE	Harmonized as EN 60424-2:2016 (not modified)
IEC 62044-2	NOTE	Harmonized as EN 62044-2
IEC 62317-2	NOTE	Harmonized as EN 62317-2

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60205	-	Calculation of the effective parameters of magnetic piece parts	EN 60205	-
IEC 60401-1	-	Terms and nomenclature for cores made of magnetically soft ferrites - Part 1: Terms used for physical irregularities	EN 60401-1	-
IEC 60424-1	-	Ferrite cores - Guidelines on the limits of surface irregularities - Part 1: General specification	EN 60424-1	-

IEC 63093-4

Edition 1.0 2019-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Ferrite cores – Guidelines on dimensions and the limits of surface irregularities – Part 4: RM-cores

Noyaux ferrites – Lignes directrices relatives aux dimensions et aux limites des irrégularités de surface – Partie 4: Noyaux RM

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 29.100.10

ISBN 978-2-8322-6615-1

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

____

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

Part 4: RM-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 63093-4 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 62317-4 published in 2005 and the second edition of IEC 60424-2 published in 2015. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC 62317-4:2005 and IEC 60424-2:2015:

a) IEC 63093-4 integrates the contents of IEC 62317-4:2005 and IEC 60424-2:2015;
b) IEC 60424-2:2015, 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
51/1265/FDIS	51/1275/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 dim*ensions 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.

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

Part 4: RM-cores

1 Scope

This part of IEC 63093 specifies the dimensions that are of importance for mechanical interchangeability for a preferred range of RM-cores and low-profile RM-cores made of ferrite, and the locations of their terminal pins on a 2,54 mm printed wiring grid in relation to the base outlines of the cores. It also gives guidance on allowable limits of surface irregularities applicable to RM-cores in accordance with the relevant generic specification.

The selection of core sizes for this document is based on the philosophy of including those sizes which are industrial standards, either by inclusion in a national standard, or by broad-based use in industry.

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

The general considerations that the design of this range of cores is based upon are given 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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60401-1 and IEC 60424-1 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

4 Primary dimensions

4.1 General

Compliance with the following requirements ensures mechanical interchangeability of complete assemblies and wound coil formers.

4.2 Dimensions of RM-cores

4.2.1 Principal dimensions

The principal dimensions of RM-cores shall be as given in Table 1 and those of the low-profile RM-cores shall be as given in Table 2. See also Figure 1 and Figure 2.

4.2.2 Effective parameter and A_{min} values

The effective parameter values for cores having the dimensions given in 4.2.1 are as shown in Table 3 and Table 4. The definitions of effective parameters and their calculations shall be as given in IEC 60205.

4.3 Main dimensions for coil formers

4.3.1 Shape of coil former and pin numbering

When the coil former is viewed from the pin side, the pins shall be numbered in a clockwise direction. Pin 1 shall be a corner pin, or the pin immediately to the right of a corner, and closest to the base outline.

For asymmetrical arrangements, pin 1 shall be at the side with the largest number of pins. The coil former shall show an asymmetry, which shall preferably be visible (or detectable) when the assembled inductor is held with the pins downwards. This asymmetry shall clearly indicate pin 1. For pin numbering of recommended core patterns and for recommended asymmetrical pin arrangements, see 4.4.

NOTE It is not required that the pin numbers be marked on the coil former.

4.3.2 Dimensions of coil formers for RM-cores for the primary standard

The dimensions specified in Table 7 and Table 8 are illustrated in Figure 5.

4.3.3 RM-cores intended particularly for power applications

These coil formers are intended for use with cores RM 6-S, RM 8, RM 10, RM 12 and RM 14A, all without centre holes. Each is provided with twelve terminal pins except for the RM 6-S coil former, which has only eight.

Figure 7 shows the features specific to this format and the corresponding dimensions are given in Table 9.

4.4 Pin locations and base outlines

These shall be as shown in Figure 6 and Figure 8 (for power applications), in which the base is viewed from the pin side, i.e. from the underside of the printed wiring boards.

The pins should fit into holes, the nominal hole diameter being:

- 1 mm when the shortest distance between pins is 2,54 mm;
- 1,3 mm when the shortest distance between pins is 2,54 $\sqrt{2}$ mm or more.