

SLOVENSKI STANDARD SIST EN 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 63093-4:2019 en

Tell'SI AND ARD PRELIVERA

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. GENELEC 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

EN IEC 63093-4:2019 (E)

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
- latest date by which the national standards conflicting with the document have to be withdrawn

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

EN IEC 63093-4:2019 (E)

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.

			A	ne'	
<u>Publication</u>	Year	<u>Title</u>	VIE	EN/HD	<u>Year</u>
IEC 60205	-	Calculation of the magnetic piece par		ers of EN 60205	-
IEC 60401-1	-	Terms and nomenor magnetically soft used for physical in	ferrites - Part 1:		-
IEC 60424-1	-	Ferrite cores - Gu surface irregularit specification	200		-

Tell'SI AND ARD PRELIVERA



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

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

Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

CONTENTS

г	JREWU		4
1	Scop	e	6
2	Norm	ative references	6
3	Term	s and definitions	6
4	Prima	ary dimensions	7
	4.1	General	7
	4.2	Dimensions of RM-cores	
	4.2.1		
	4.2.2		
	4.3	Main dimensions for coil formers	
	4.3.1	Shape of coil former and pin numbering	7
	4.3.2	Dimensions of coil formers for RM-cores for the primary standard	7
	4.3.3	RM-cores intended particularly for power applications	7
	4.4	Pin locations and base outlines	7
	4.5	Spring recess	8
	4.6	Stud recess	8
5	Mour	Stud recessting	21
6	Limit	General Examples of surface irregularities Chips and ragged edges	21
	6.1	General Genera	21
	6.2	Examples of surface irregularities	21
	6.3	Chips and ragged edges	21
	6.3.1	General	21
	6.3.2	Chip and ragged edges located on the mating surface	21
	6.3.3		
	6.4	Cracks	24
	6.5	Pull-out Crystallites	26
	6.6	Crystallites	27
	6.7	Flash	27
	6.8	Pores	28
Αı	nnex A (informative) RM-core design	29
	A.1	General	29
	A.2	Pin locations and base outlines	29
	A.3	Design considerations and dimensions	29
	A.4	Practical considerations	30
		normative) Guidance for measuring clamping forces relevant to RM-core	
te	sts		31
	B.1	Test conditions and clamping forces	31
	B.2	Clamping procedure	31
Αı	nnex C (informative) Examples of allowable areas of chips	33
Bi	ibliograp	vhy	34
F:	aure 1	- Dimensions of RM-cores	0
	-		
		- Dimensions of low-profile RM-cores	
	_	- Dimensions of spring recess	
Fi	gure 4 -	- Dimensions of stud recess	13

Figure 5. Main disconsists of call formance for DM cons	4.4
Figure 5 – Main dimensions of coil formers for RM-cores	
Figure 6 – Pin locations and base outlines viewed from the underside of the board	
Figure 7 – Dimensions of specific features	
Figure 8 – Pin locations and base outlines viewed from the underside of the board	
Figure 9 – Examples of surface irregularities	21
Figure 10 – Chips on mating surfaces	22
Figure 11 – Location of cracks – Top view	24
Figure 12 – Location of cracks – Bottom view	24
Figure 13 – Dimension W	26
Figure 14 – Location of pull-out	26
Figure 15 – Pull-out in the clamping recess area	27
Figure 16 – Location of a crystallite	27
Figure 17 – Location of a flash	28
Figure 18 – Location of pore	28
Figure B.1 – Mounting device	31
Table 1 – Dimensions of RM-cores	9
Table 2 – Dimensions of low-profile RM-cores	10
Table 3 – Effective parameter and $A_{\sf min}$ values for RM-cores	11
Table 4 – Effective parameter and A_{min} values for low-profile RM-cores	12
Table 5 – Dimensions of spring recess	13
Table 6 – Dimensions of stud recess	13
Table 7 – Dimensional limits for coil formers for RM-cores	
Table 8 – Dimensional limits for coil formers for low-profile RM-cores	15
Table 9 – Dimensions of specific features	19
Table 10 – Area and length reference of irregularities for visual inspection	23
Table 11 – Limits for cracks	25
Table 12 – W dimensions	25
Table B.1 – Inner diameters and recommended clamping forces	32
Table C.1 – Examples of allowable area of chins	33

IEC 63093-4:2019 © IEC 2019

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 4: RM-cores

FORFWORD

- 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.

- 4 -

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 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.

Teller And Arthurs iteliand and deserted and a supplementations of the light standards and supplementati

IEC 63093-4:2019 © IEC 2019

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

- 6 -

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 broadbased 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