

INTERNATIONAL STANDARD

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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

FOREWORD

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IEC 63093-4 has been prepared by IEC technical committee 51: Magnetic components, ferrite and magnetic powder materials. It is an International Standard.

This second edition cancels and replaces the first edition published in 2019. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) revision of Table 3 and Table 4 according to IEC 60205 ED4.

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

Draft	Report on voting
51/1586/FDIS	51/1599/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
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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 and reference of dimensions*

IEC 63093-1, *Ferrite cores - Guidelines on dimensions and 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 63093-1 apply.

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

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://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.

4.5 Spring recess

RM-cores usually have recesses that allow the core halves to be held together by two spring clamps snapping into these recesses. The recesses consist of a flat spring rest and a locking ridge. The dimensions are given in Table 5 and Figure 3; the profile of this spring recess is not defined but the limit dimensions shall be complied with.

4.6 Stud recess

Those RM-cores with centre-pole holes may have recesses for the fixed part of the adjusting device with dimensions in accordance with Table 6 and Figure 4. These dimensions are not mandatory for manufacturers who supply cores with the fixed part of the adjusting device attached.

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