SLOVENSKI STANDARD
oSIST prEN IEC 63182-4:2021

01-september-2021

Jedra iz magnetnega prahu - Smernice o merah in mejnih vrednostih površinskih nepravilnosti - 4. del: Blokovna jedra

Magnetic powder cores - guidelines on dimensions and the limits of surface irregularities - Part 4: Block-cores

Noyaux en poudre magnétique - Lignes directrices concernant les dimensions et les limites des irrégularités de surface - Partie 4: Noyaux en blocs

Ta slovenski standard je istoveten z: prEN IEC 63182-4:2021

ICS:

29.100.10 Magnetne komponente Magnetic components

oSIST prEN IEC 63182-4:2021 en

51/1373/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: **IEC 63182-4 ED1**	
DATE OF CIRCULATION: **2021-06-11**	CLOSING DATE FOR VOTING: **2021-09-03**
SUPERSEDES DOCUMENTS: **51/1344/CD, 51/1354/CC**	

IEC TC 51 : MAGNETIC COMPONENTS, FERRITE AND MAGNETIC POWDER MATERIALS

SECRETARIAT: Japan	SECRETARY: Mr Takeshi Abe
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY

☒ SUBMITTED FOR CENELEC PARALLEL VOTING

☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

Attention IEC-CENELEC parallel voting

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

Magnetic powder cores – guidelines on dimensions and the limits of surface irregularities– Part 4: Block-cores

PROPOSED STABILITY DATE: 2027

NOTE FROM TC/SC OFFICERS:

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

MAGNETIC POWDER CORES – GUIDELINES ON DIMENSIONS AND THE LIMITS OF SURFACE IRREGULARITIES –

Part 4: Block-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.

IEC 63182-4 has been prepared by IEC technical committee 51: Magnetic components, ferrite and magnetic powder materials. It is an international standard.

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

FDIS	Report on voting
51/XXXX/FDIS	51/XXXX/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.

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

This document was drafted in accordance with the 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 http://www.iec.ch/standardsdev/publications.

A list of all parts in the IEC 63182 series, published under the general title *Magnetic powder 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,
- withdrawn,
- replaced by a revised edition, or
- amended.

MAGNETIC POWDER CORES – GUIDELINES ON DIMENSIONS AND THE LIMITS OF SURFACE IRREGULARITIES -

Part 4: Block-cores

Scope

This part of IEC 63182 specifies the preferred range of the dimensions that are important for mechanical interchangeability and the guidelines on allowable limits of surface irregularities for block-cores made of metallic magnetic powder.

This document is a specification about surface irregularities which is useful in the negotiations between suppliers and users of magnetic powder core.

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

Normative references

The following documents is referred to in the text in such a way that some or all of its 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 63182-1, *Magnetic powder cores – Guidelines on dimensions and the limits of surface irregularities – Part 1: General specifications*

Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 63182-1 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

Primary dimensions

The main dimensions of block-cores shall be those given in Table 1. The dimensions specified in Table 1 are illustrated in Figure 1.

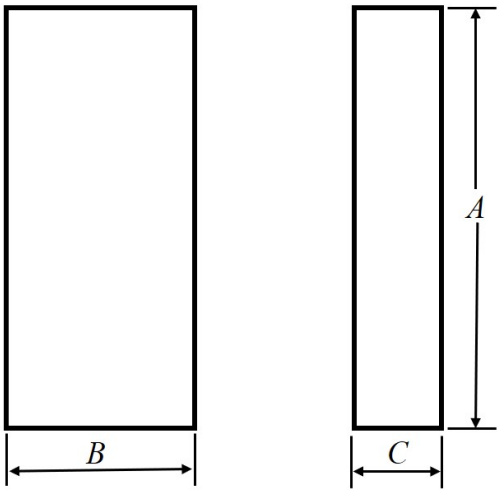

Figure 1 – Main dimensions of block-cores

Table 1 – Main dimensions of block-cores

Size[a]	*A* mm		*B* mm		*C* mm	
	Min.	Max.	Min.	Max.	Min.	Max.
B474128	47,0	48,0	40,5	41,5	27,0	28,0
B502015	49,5	50,5	19,5	20,5	14,5	15,5
B502020	49,5	50,5	19,5	20,5	19,5	20,5
B503015	49,5	50,5	29,5	30,5	14,5	15,5
B503020	49,5	50,5	29,5	30,5	19,5	20,5
B602015	59,5	60,5	19,5	20,5	14,5	15,5
B602020	59,5	60,5	19,5	20,5	19,5	20,5
B603015	59,5	60,5	29,5	30,5	14,5	15,5
B603020	59,5	60,5	29,5	30,5	19,5	20,5
B702015	69,5	70,5	19,5	20,5	14,5	15,5
B702020	69,5	70,5	19,5	20,5	19,5	20,5
B703015	69,5	70,5	29,5	30,5	14,5	15,5
B703020	69,5	70,5	29,5	30,5	19,5	20,5
B802015	79,5	80,5	19,5	20,5	14,5	15,5
B802020	79,5	80,5	19,5	20,5	19,5	20,5
B803015	79,5	80,5	29,5	30,5	14,5	15,5
B803020	79,5	80,5	29,5	30,5	19,5	20,5

NOTE For the 5030, 6030, 7030, and 8030 block-cores, 30,3 mm is also used as the nominal dimension *B* by many suppliers and users. For these cases, *B* can be specified as 29,8 Min. / 30,8 Max. mm.

[a] The core size designation contains a combination of six numbers; the first one and the second one indicate the length *A* of the core, the third one and the fourth one its width *B* and the fifth one and the sixth one its height *C*.

Limits of surface irregularities

5.1 Definition of surface irregularities

Surface irregularities are defined in IEC 63182-1.

5.2 Examples of surface irregularities

Figure 2 shows different examples of surface irregularities of block-cores.

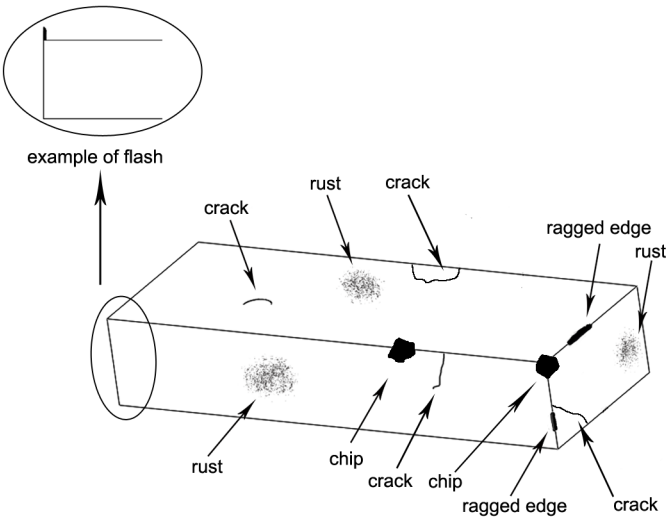

Figure 2 – Examples of surface irregularities

5.3 Chips and Ragged edges

5.3.1 General

The minimum area for a chip is taken as 0,5 mm², so as to be distinguishable to the naked eye. The maximum cumulative area of chips on a surface, regardless of core size, is 50 mm². Area and length references for visual inspection are given in IEC 63182-1.

5.3.2 Chips

Figure 2 shows the chips at various locations for block-core. The maximum cumulative area of chips on a surface is 3 % of the area of the surface or 50 mm², whichever is smaller.

5.3.3 Ragged edges

Figure 2 shows the ragged edges at various locations for block-core. The total length of the ragged edges shall be less than 20 % of the length of the relevant edges.

5.4 Cracks

Figure 2 shows the cracks at various locations for block-core. Up to 3 cracks per surface are allowed, as long as each crack is less than 25 % of the reference dimension and no crack is in contact with edge at both ends. Reference dimension is the smallest dimension of a surface.

5.5 Flash

The maximum dimension of flashes on the surface shall not exceed 0,2 mm (see Figure 2).

5.6 Rust

Figure 2 shows rusts at various locations for block-core. The area of rust shall not exceed the following limits:

- the cumulative area of the rust located on the same surface shall not exceed 25 % of the surface area;
- rust should not influence the electromagnetic properties or the mechanical strength of the core. If otherwise, it is not acceptable.

5.7 Discoloration

Generally, no limit of the discoloration is defined. If necessary, a limit sample with this irregularity can be designated by supplier and user.

Annex A
(normative)

Derived standards

The primary standard given in the main text establishes values for the main dimensions of block-cores and enables full interchangeability to be achieved for components complying with that standard.

Parties interested in making or using block-cores may find it desirable to lay down local standards for everyday use, which show the dimensions and tolerances in greater detail than Clause 4, and which correspond to the state of the art in that area. These are known as “derived standards”. When doing so, care should be taken not to exclude any other type of block-cores meeting this primary standard, which would also satisfy the performance specification valid for a specific case.

It should be noted that a component complying with a derived standard will comply with the requirements of Clause 4 of the primary standard, and therefore permit any such core assemblies or coil formers to be used interchangeably where the primary standard is in force. However, it is not the case that any components that comply with the primary standard will necessarily comply with the derived standard, nor be interchangeable into applications where the derived standard is in force.

When requirements would lead to the establishing of a national standard, the relevant national standardization body is strongly requested to insert a note in such a national standard that:

a) the standard is in accordance with the dimensional requirements of this present primary standard, but that more details are given in order to promote the practical use of the standard;

b) other solutions are possible within the framework of this primary standard and should not be excluded if the resulting cores are functionally interchangeable with those according to the national standard.

_____