

Calculation of the effective parameters of magnetic
piece parts

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 60205:2017 sisaldab Euroopa standardi EN 60205:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 60205:2017 consists of the English text of the European standard EN 60205:2017.
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English Version

**Calculation of the effective parameters of magnetic piece parts
(IEC 60205:2016)**

Calcul des paramètres effectifs des pièces
ferromagnétiques
(IEC 60205:2016)

Berechnung der effektiven Kernparameter magnetischer
Formteile
(IEC 60205:2016)

This European Standard was approved by CENELEC on 2016-12-23. 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.

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European foreword

The text of document 51/1149/FDIS, future edition 4 of IEC 60205, 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 60205:2017.

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) 2017-09-23
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-12-23

This document supersedes EN 60205:2006.

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Endorsement notice

The text of the International Standard IEC 60205:2016 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated :

IEC 62317-13	NOTE	Harmonized as EN 62317-13.
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INTRODUCTION

The purpose of this revision is to provide formulae by which everybody can reach the same effective parameter values. Firstly, it is necessary to have a sufficient number of significant figures when figures are rounded off in the process of calculation. Additionally, some of the calculation formulae have been changed to get closer to the actual shape.

In this revision, the basic idea of calculation has not been changed. Recently, analysis of the magnetic field in the core has been considerably improved, so that, based on these ideas, development of new approaches and formulae can be expected.

Furthermore, the new “EC-cores” have been added.

The parameters in the existing IEC standards will be revised with the outcome from the formulae of this document.

CALCULATION OF THE EFFECTIVE PARAMETERS OF MAGNETIC PIECE PARTS

1 Scope

This document specifies uniform rules for the calculation of the effective parameters of closed circuits of ferromagnetic material.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

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 Basic rules applicable to this standard

4.1 All results shall be expressed in units based on millimetres, shall be accurate to three significant figures, but to derive l_e , A_e , and V_e the values of C_1 and C_2 shall be calculated to five significant figures. All angles are in radians.

NOTE The purpose of specifying this degree of accuracy is only to ensure that parameters calculated at different establishments are identical and it is not intended to imply that the parameters are capable of being determined to this accuracy.

4.2 A_{\min} is the nominal value of the smallest cross-section. A_g is the geometrical cross-section of a ring core with rectangular shape. All the dimensions used to calculate A_{\min} shall be the mean values between the tolerance limits quoted on the appropriate piece part drawing. All results shall be expressed in units based on millimetres, and shall be accurate to three significant figures.

The minimum physical cross-section area A_{\min} is given as: $A_{\min} = \min(A_i)$

NOTE A_g to be used for the measurement of the saturation flux density B_{\max} on ring cores with rectangular cross-section.

4.3 Calculations are only applicable to the component parts of a closed magnetic circuit.

4.4 All dimensions used for the purpose of calculations shall be the mean value within the tolerance limits quoted on the appropriate piece part drawing.

4.5 All irregularities in the outline of the core, such as small cut-outs, notches, chamfers, etc. shall be ignored unless otherwise described.