

INTERNATIONAL STANDARD

Ferrite cores - Standard inductance factor for gapped cores and its tolerance

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CONTENTS

FOREWORD.....	2
INTRODUCTION.....	4
1 Scope.....	5
2 Normative references	5
3 Terms and definitions	5
4 Measuring method	5
5 A_L value and its tolerance	5
5.1 General.....	5
5.2 Tolerance	5
5.3 E-core.....	5
5.4 ETD-core and EER-core	6
5.5 EP-core	6
5.6 RM-core.....	6
5.7 Pot-core.....	6
5.8 PQ-core	6
5.9 Low-profile core	6
5.10 PM-cores	6
5.11 EC-cores	6
5.12 EFD-cores	6
Bibliography.....	19
Table 1 – Tolerance versus letter code	5
Table 2 – A_L and its tolerance for E-cores (IEC 63093-8).....	7
Table 3 – A_L and its tolerance for ETD-cores (IEC 63093-6) and EER-cores (IEC 63093-7).....	8
Table 4 – A_L and its tolerance for EP-cores (IEC 63093-5)	9
Table 5 – A_L and its tolerance for RM-cores (IEC 63093-4).....	10
Table 6 – A_L and its tolerance for Pot-cores (IEC 63093-2).....	10
Table 7 – A_L and its tolerance for PQ-cores (IEC 63093-13)	11
Table 8 – A_L and its tolerance for EL-cores (IEC 63093-9).....	12
Table 9 – A_L and its tolerance for EL-I (plate)-cores (IEC 63093-9)	12
Table 10 – A_L and its tolerance for low-profile ER-I (plate)-cores (IEC 63093-9).....	13
Table 11 – A_L and its tolerance for low-profile ER-cores (IEC 63093-9)	14
Table 12 – A_L and its tolerance for low-profile E-I (plate)-cores (IEC 63093-9)	15
Table 13 – A_L and its tolerance for low-profile E-cores (IEC 63093-9).....	15
Table 14 – A_L and its tolerance for low-profile RM cores (IEC 63093-4).....	16
Table 15 – A_L and its tolerance for low-profile PQ-I (plate)-cores (IEC 63093-13).....	16
Table 16 – A_L and its tolerance for PM-cores (IEC 63093-10)	17
Table 17 – A_L and its tolerance for EC-cores (IEC 63093-11)	17
Table 18 – A_L and its tolerance for EFD-cores (IEC 63093-14)	18

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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IEC 62358 has been prepared by IEC technical committee 51: Magnetic components, ferrite and magnetic powder materials. It is an International Standard.

This third edition cancels and replaces the second edition published in 2012. This edition constitutes a technical revision.

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

- a) addition of A_L value (inductance factor) and its tolerance for PM-cores;
- b) addition of A_L value (inductance factor) and its tolerance for EC-cores;
- c) addition of A_L value (inductance factor) and its tolerance for EFD-cores.

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

Draft	Report on voting
51/1583/FDIS	51/1595/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.

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, or
- revised.

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INTRODUCTION

The A_L value (inductance factor) and its tolerance is a critical design parameter for gapped ferrite core sets. For any core size, there is a wide range of possible gapped A_L values, and there is no technical reason why a user could not select any precise value within the possible range. But as a practical matter, there are advantages to the users that certain values within the range are identified to be standard and to the users in selecting those values where possible.

The potential advantages include faster delivery from supplier inventories of standard gapped parts, greater ease of obtaining small quantities for development sampling and low-volume projects, interchangeability among multiple applications, reduced risk of dead inventories, economies of scale from producing larger batches, and standardized tolerancing across multiple suppliers.

It is important that users specify A_L values by selecting them from this document when possible. The tolerances shown in this document are selected for suitable performance with best cost and full interchangeability. Suppliers may offer tighter tolerances for their standard parts while remaining in compliance with the standard. Users can require tighter tolerances for specific applications.

In cases where users or suppliers specify a physical gap length with tolerances, then the A_L value will only be approximate and without tolerance. It is generally true that better measurement precision and better consistency in application performance is achieved by specifying the A_L value and not the gap dimension. The exceptions are cases in which the gap is quite large, where users can find that their application coil gives a more consistent result if the gap dimension is controlled directly and the A_L value as measured in the supplier's standard coil is allowed to vary.

1 Scope

This document provides standard A_L values (inductance factors) and their tolerances of Pot, RM, ETD, E, EER, EP, PQ, PM, EC, EFD and low-profile gapped ferrite cores.

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 62044-2, *Cores made of soft magnetic materials - Measuring methods - Part 2: Magnetic properties at low excitation level*

ISO 497, *Guide to the choice of series of preferred numbers and of series containing more rounded values of preferred numbers*

3 Terms and definitions

No terms and definitions are listed in this document.

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 Measuring method

The method for measuring the inductance factor shall be in accordance with IEC 62044-2.

5 A_L value and its tolerance

5.1 General

The series of preferred numbers of the A_L value shall be selected from the R10 series of ISO 497.

5.2 Tolerance

The tolerance shall be selected from Table 1, which specifies letter codes for the tolerances.

Table 1 – Tolerance versus letter code

Tolerance %	±3	±5	±7	±10	±12	±15	±20
Letter code	A	J	E	K	H	L	M

5.3 E-core

The A_L value and its tolerance for E-cores shall be selected from Table 2.

NOTE The E-core is a pair of an E-shape core.