

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Fixed inductors for electromagnetic interference suppression –  
Part 2-1: Blank detail specification – Inductors for which safety tests are  
required**

**Inductances fixes d'antiparasitage –  
Partie 2-1: Spécification particulière – Inductances exigeant des essais de  
sécurité**



## THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2023 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Secretariat  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

### About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

### About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

#### IEC publications search - [webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

#### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

#### IEC Customer Service Centre - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: [sales@iec.ch](mailto:sales@iec.ch).

#### IEC Products & Services Portal - [products.iec.ch](http://products.iec.ch)

Discover our powerful search engine and read freely all the publications preview. With a subscription you will always have access to up-to-date content tailored to your needs.

#### Electropedia - [www.electropedia.org](http://www.electropedia.org)

The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

### A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

### A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

#### Recherche de publications IEC -

[webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

#### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

#### Service Clients - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: [sales@iec.ch](mailto:sales@iec.ch).

#### IEC Products & Services Portal - [products.iec.ch](http://products.iec.ch)

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

#### Electropedia - [www.electropedia.org](http://www.electropedia.org)

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 300 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 19 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

---

**Fixed inductors for electromagnetic interference suppression –  
Part 2-1: Blank detail specification – Inductors for which safety tests are  
required**

**Inductances fixes d'antiparasitage –  
Partie 2-1: Spécification particulière – Inductances exigeant des essais de  
sécurité**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

---

ICS 29.100.10, 31.020

ISBN 978-2-8322-7932-8

**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

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	7
2 Normative references .....	7
3 Terms and definitions .....	7
4 General information .....	7
4.1 Methods of mounting.....	7
4.2 Dimensions .....	8
4.3 Ratings and characteristics .....	8
4.4 Marking.....	8
4.5 Ordering information .....	8
4.6 Certified records of released lots .....	9
4.7 Additional information (not for inspection purposes).....	9
4.8 Additional or increased severities or requirements to those specified in the generic or sectional specification .....	9
5 Inspection requirements .....	9
5.1 Procedures .....	9
5.2 Test schedules.....	9
5.2.1 Initial approval.....	9
5.2.2 Conformance tests.....	9
5.2.3 Quality conformance inspection .....	10
Annex A (normative) Declaration of design .....	11
Annex B (informative) Quality conformance inspection.....	12
Bibliography.....	17
Table 1 – Dimensions related to case size .....	8
Table 2 – Type designation related to values of inductance, rated current and DC resistance .....	8
Table 3 – Other characteristics .....	9
Table 4 – Conformance tests (lot by lot).....	9
Table B.1 – Test schedule for quality conformance inspection .....	12
Table B.2 – Test schedule for quality conformance inspection – periodical tests .....	13

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIXED INDUCTORS FOR ELECTROMAGNETIC  
INTERFERENCE SUPPRESSION –****Part 2-1: Blank detail specification –  
Inductors for which safety tests are required**

## 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, accept 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) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 60938-2-1 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment. It is an International Standard.

This second edition cancels and replaces the first edition published in 1999. This edition constitutes a technical revision.

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

- a) it combines IEC 60938-2-1:1999 and IEC 60938-2-2:1999 into one Blank detail specification (BDS);
- b) test schedule for quality conformance inspection is moved to an informative annex (Annex B).

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

Draft	Report on voting
40/3084/FDIS	40/3103/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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

A list of all parts in the IEC 60938 series, published under the general title *Fixed inductors for electromagnetic interference suppression*, 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](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

## INTRODUCTION

### Blank detail specification

A blank detail specification is a supplementary document to the sectional specification and contains requirements for style, layout and minimum content of detail specifications. Detail specifications not complying with these requirements shall not be considered as being in accordance with IEC specifications nor shall they so be described.

In the preparation of detail specifications, the content of 4.3 of the sectional specification shall be taken into account.

The numbers between square brackets on the first page of the detail specification correspond to the following information which shall be inserted in the position indicated.

### Identification of the detail specification

- [1] The "International Electrotechnical Commission" or the National Standards Organization under whose authority the detail specification is drafted.
- [2] The IEC or National Standards number of the detail specification, date of issue and any further information required by the national system.
- [3] The number and issue number of the IEC or national generic specification.
- [4] The IEC number of the blank detail specification.

### Identification of the inductor

- [5] A short description of the type of inductor.
- [6] Information on typical construction (when applicable).
- [7] Outline drawing with main dimensions which are of importance for interchangeability and/or reference to the national or international documents for outlines. Alternatively, this drawing may be given in an annex to the detail specification.
- [8] Application or group of applications covered and/or assessment level.
- [9] Reference data on the most important properties, to allow comparison between the various inductor types.

[1]	IEC 60938-2-1XX [2] QC XXXXXXXXXXXXX
ELECTRONIC COMPONENTS OF ASSESSED QUALITY IN ACCORDANCE WITH:  [3]	IEC 60938-2-1 [4] QC XXXXXX
Outline drawing: (see Table 1) (... angle projection)  [7] (Other shapes are permitted within the dimensions given)	FIXED INDUCTORS FOR ELECTROMAGNETIC INTERFERENCE SUPPRESSION FOR WHICH SAFETY TESTS ARE REQUIRED [5]  [6]  [8]
NOTES [1] to [9] see page 4.	

[9]

Information on the availability of components qualified to this detail specification is given in the Register of Approvals.

currently in preview, click buy full version

## FIXED INDUCTORS FOR ELECTROMAGNETIC INTERFERENCE SUPPRESSION –

### Part 2-1: Blank detail specification – Inductors for which safety tests are required

#### 1 Scope

This part of IEC 60938-2 is applicable to the drafting of detail specifications for fixed inductors for which safety tests are required for use in electronic equipment.

#### 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 60938-2:2021, *Fixed inductors for electromagnetic interference suppression – Part 2: Sectional specification on power line chokes*

#### 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 <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

#### 4 General information

##### 4.1 Methods of mounting

The recommended method of mounting for normal use shall be specified. It is mandatory to use this method for the application of shock and vibration tests.

The method of mounting shall be given in the detail specification. This method shall be used for the application of shock and vibration tests.

If the design of the inductor requires special mounting fixtures in its use, the detail specification shall describe the mounting fixtures and they shall be used in the application of shock and vibration tests. The specified heat sink shall be used in the application of the endurance test.