IEC 60034-7

Edition 3.0 2020-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Rotating electrical machines –
Part 7: Classification of types of construction, mounting arrangements and terminal box position (IM Code)

Machines électriques tournantes –
Partie 7: Classification des modes de construction, des dispositions de montage et position de la boîte à bornes (Code IM)



IEC 60034-7:2020-10(en-fr)



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2020 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 Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
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
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 It also gives information on projects, replaced and withdrawn publications.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
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
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

Electropedia - www.electropedia.org
The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary
67 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

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

Electropedia - www.electropedia.org
Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 000 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary
67 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

IEC 60034-7

Edition 3.0 2020-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Rotating electrical machines – Part 7: Classification of types of construction, mounting arrangements and terminal box position (IM Code)

Machines électriques tournantes – Partie 7: Classification des modes de construction, des dispositions de montage et position de la boîte à bornes (Code IM)

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 29.160.01

ISBN 978-2-8322-8845-0

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.

® Registered trademark of the International Electrotechnical Commission
Marque déposée de la Commission Electrotechnique Internationale

CONTENTS

FOREWORD 4
1 Scope 6
2 Normative references 6
3 Terms and definitions 6
4 Code I (alpha-numeric designation) 7
4.1 Designation of machines with horizontal shafts 7
4.2 Designation of machines with vertical shafts 9
4.3 Terminal box location 12
5 Code II (all-numeric designation) 12
5.1 Designation 12
5.2 Significance of the first numeral 13
5.3 Significance of the fourth numeral 13
5.4 Significance of the second and third numerals 13
5.5 Terminal box location 14
5.6 Examples of designations 14
5.7 Inclination or declination of shaft 14
Annex A (informative) Relationship between Code I and Code II 24
Bibliography 25

Table 1 – Designations for machines with horizontal shafts (IM B...) 8
Table 2 – Designations for machines with vertical shafts (IM V...) 10
Table 3 – Code letter for terminal box location 12
Table 4 – Significance of the first numeral 13
Table 5 – Significance of the fourth numeral 13
Table 6 – Significance of second and third numerals for first numeral 1 (Foot-mounted machines with endshield bearing(s) only) 15
Table 7 – Significance of second and third numerals for first numeral 2 (Foot-and-flange-mounted machines with endshield bearing(s) only) 16
Table 8 – Significance of second and third numerals for first numeral 3 (Flange-mounted machines with endshield bearing(s) only with a flange part of an endshield) 17
Table 9 – Significance of second and third numerals for first numeral 4 (Flange-mounted machines with endshield bearing(s) only with a flange not part of an endshield, but an integral part of the frame or other component) 18
Table 10 – Significance of second and third numerals for first numeral 5 (Machines without bearings) 19
Table 11 – Significance of second and third numerals for first numeral 6 (Machines with endshield bearings and pedestal bearings) 20
Table 12 – Significance of second and third numerals for first numeral 7 (Machines with pedestal bearings only) 21
Table 13 – Significance of second and third numerals for first numeral 8 (Vertical machines of construction not covered by first numerals 1 to 4) 22
Table 14 – Significance of second and third numerals for first numeral 9 (Machines with special mounting arrangements) 23
Table A.1 – Relationship between Code I and Code II for machines with horizontal shafts (IM B...) 24

Table A.2 – Relationship between Code I and Code II for machines with vertical shafts (IM V...) 24

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

ROTATING ELECTRICAL MACHINES –

Part 7: Classification of types of construction, mounting arrangements and terminal box position (IM Code)

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.

International Standard IEC 60034-7 has been prepared by IEC technical committee 2: Rotating machinery.

This third edition cancels and replaces the second edition, published in 1992, and its Amendment 1:2000. It constitutes a technical revision.

The main technical changes with regard to the previous edition are as follows:

5.4 Note on twin motors added.

5.5 Reference to 4.3 instead of duplication of text.

5.7 New subclause on marking of shaft inclination or declination.

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

FDIS	Report on voting
2/2010/FDIS	2/2018/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.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60034 series, published under the general title *Rotating electrical machines*, 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 "http://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.

The contents of the corrigendum 1 (2023-03) have been included in this copy.

ROTATING ELECTRICAL MACHINES –

Part 7: Classification of types of construction, mounting arrangements and terminal box position (IM Code)

1 Scope

This part of IEC 60034 specifies the IM Code, a classification of types of construction, mounting arrangements and the terminal box position of rotating electrical machines.

Two systems of classification are provided as follows:

– Code I (see Clause 4): An alpha-numeric designation applicable to machines with end-shield bearing(s) and only one shaft extension.

– Code II (see Clause 5): An all-numeric designation applicable to a wider range of types of machines including types covered by Code I.

The type of machine not covered by Code II is fully described in words.

The relationship between Code I and Code II is given in Annex A.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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

3.1
type of construction
arrangement of machine components with regard to fixings, bearing arrangement and shaft extension

[SOURCE: IEC 60050-411:1996, 411-43-34]

3.2
mounting arrangement
orientation on site of the machine as the whole with regard to shaft alignment and position of fixings

[SOURCE: IEC 60050-411:1996, 411-43-35]

3.3
shaft extension
portion of a shaft extending beyond an extreme bearing

Note 1 to entry: The bearing may be on the machine itself or be part of an assembly comprising a machine and (an) additional bearing(s).

[SOURCE: IEC 60050-411:1996, 411-43-07]

3.4
drive-end of a machine
D-end
that end of the machine which accommodates the shaft end

Note 1 to entry: This is normally the driving end of a motor or the driven end of a generator.

Where for some machines the above definition is inadequate, the D-end is defined as follows:

a) Machine with two shaft extensions of different diameter: the end with the larger shaft diameter;

b) Machine with a cylindrical shaft extension and a conical shaft extension of the same diameter: the end with cylindrical shaft extension;

c) Machine with other arrangements: according to IEC 60034-8 if applicable; otherwise by agreement.

Note 2 to entry: The outer diameter of a forged-on flange is taken to be the diameter of the shaft extension.

[SOURCE: IEC 60050-411:1996, 411-43-36]

3.5
non-drive end of the machine
N-end
that end of the machine opposite to the drive end

[SOURCE: IEC 60050-411:1996, 411-43-37]

4 Code I (alpha-numeric designation)

4.1 Designation of machines with horizontal shafts

In Code I, a machine with a horizontal shaft is designated by the code letters IM (International Mounting), followed by a space, the letter B, one or two numerals as shown in Table 1 and an optional letter as shown in 4.3.