



Irish Standard
I.S. EN IEC 60072-1:2022

Version 1.00

**Rotating electrical machines - Dimensions and output series
- Part 1: Frame numbers 56 to 400 and flange numbers 55 to
1080**

I.S. EN IEC 60072-1:2022 V1.00

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

NSAI/... xxx: A National adoption of a Technical Regulation (TR), Technical Specification (TS), CEN and/or CENELEC Workshop Agreement (CWA).

I.S. EN IEC 60072-1:2022 V1.00 was published under the authority of the NSAI and came into effect on: 2022-06-07

ICS number(s): 29.160.01

NSAI
1 Swift Square
Northwood, Santry
Dublin 9
D09 A0E4
+353 1 807 3800
standards@nsai.ie
NSAI.ie

Sales
+353 1 857 6730
Standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN IEC 60072-1:2022 V1.00 is the version of the NSAI adopted European document EN IEC 60072-1:2022, *Rotating electrical machines - Dimensions and output series - Part 1: Frame numbers 56 to 400 and flange numbers 55 to 1080*, including any Corrections, Amendments etc. to EN IEC 60072-1:2022.

This normative document by CEN/CENELEC the elaboration of which includes a public enquiry, followed by a Formal Vote of CEN/CENELEC national members and final ratification. This European Standard is published as an identical national standard and every conflicting national standard will be withdrawn. The content of a European Standard does not conflict with the content of any other EN (and HD for CENELEC).

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

For relationships with other publications refer to the NSAI web store.

Compliance with this document does not of its self confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page intentionally left blank

EUROPEAN STANDARD

EN IEC 60072-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2022

ICS 29.160.01

Supersedes EN 50347:2001

English Version

**Rotating electrical machines - Dimensions and output series -
Part 1: Frame numbers 56 to 400 and flange numbers 55 to
1080
(IEC 60072-1:2022)**

Machines électriques tournantes - Dimensions et séries de puissances - Partie 1: Désignation des carcasses entre 56 et 400 et des brides entre 55 et 1080 (IEC 60072-1:2022)

Abmessungen und Leistungsreihen für drehende elektrische Maschinen - Teil 1: Baugrößen 56 bis 400 und Flanschgrößen 55 bis 1080 (IEC 60072-1:2022)

This European Standard was approved by CENELEC on 2022-05-04. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

I.S. EN IEC 60072-1:2022 V1.00
EN IEC 60072-1:2022 (E)

European foreword

The text of document 2/2059/CDV, future edition 7 of IEC 60072-1, prepared by IEC/TC 2 "Rotating machinery" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60072-1:2022.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2023-02-04 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2025-05-04 document have to be withdrawn

This document supersedes EN 50347:2001 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60072-1:2022 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60034-7 NOTE Harmonized as EN IEC 60034-7

IEC 60079-1 NOTE Harmonized as EN 60079-1

IEC 60079-7 NOTE Harmonized as EN 60079-7

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60079-0	-	Explosive atmospheres - Part 0: Equipment - General requirements	EN IEC 60079-0	-
ISO 128-3	2020	Technical product documentation (TPD) - General principles of representation - Part 3: Views, sections and cuts	EN ISO 128-3	2020
ISO 273	-	Fasteners - Clearance holes for bolts and screws	EN 20273	-
ISO 286	series	Geometrical product specifications (GPS) - ISO code system for tolerances on linear sizes	EN ISO 286	series
ISO 1101	-	Geometrical product specifications (GPS) - Geometrical tolerancing - Tolerances of form, orientation, location and run-out	EN ISO 1101	-
ISO 2768-1	-	General tolerances - Part 1: Tolerances for - linear and angular dimensions without individual tolerance indications		-

This page intentionally left blank



IEC 60072-1

Edition 7.0 2022-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Rotating electrical machines – Dimensions and output series –
Part 1: Frame numbers 56 to 400 and flange numbers 55 to 1080**

**Machines électriques tournantes – Dimensions et séries de puissances –
Partie 1: Désignation des carcasses entre 56 et 400 et des brides
entre 55 et 1080**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2022 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 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.

IEC Products & Services Portal - products.iec.ch

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

Electropedia - 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

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.

IEC Products & Services Portal - 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

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.



IEC 60072-1

Edition 7.0 2022-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Rotating electrical machines – Dimensions and output series –
Part 1: Frame numbers 56 to 400 and flange numbers 55 to 1080**

**Machines électriques tournantes – Dimensions et séries de puissances –
Partie 1: Désignation des carcasses entre 56 et 400 et des brides
entre 55 et 1080**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.160.01

ISBN 978-2-8322-1093-0

**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.**

CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references	6
3 Terms and definitions	6
4 Symbols	7
4.1 Letter symbols for dimensions.....	7
4.2 Dimensional sketches	9
5 Designations of machines.....	10
5.1 Frame sizes	10
5.2 Flange numbers	10
5.3 Shaft extension.....	10
6 Location of the terminal box.....	10
6.1 Machines with feet.....	10
6.2 Machines without feet	10
7 Fixing dimensions and tolerances.....	11
7.1 General.....	11
7.2 Foot-mounted machines.....	11
7.3 Flange-mounted machines	12
8 Shaft end dimensions and tolerances	13
8.1 Shaft end dimenions	13
8.2 Parallelism of shaft to foot face.....	16
8.3 Parallelism of keyway to shaft axis.....	16
8.4 Lateral displacement of keyway	16
9 Methods of measurement	16
9.1 General.....	16
9.2 Shaft extensions run-out	17
9.3 Concentricity of spigot and shaft	17
9.4 Perpendicularity of mounting face of flange to shaft	17
9.5 Parallelism of shaft to foot face.....	18
9.6 Parallelism of keyway to shaft axis.....	19
9.7 Lateral displacement of keyway	19
10 Preferred rated output values	19
11 Relationships between frame size, shaft extensions, rated outputs and flange numbers	21
Annex A (informative) Additional relationships for frame sizes and output ratings	24
Annex B (informative) Additional recommended letters and dimensions	25
Bibliography.....	26
Figure 1 – Dimensional sketches	9
Figure 2 – Illustration of the measurement of shaft extensions run-out.....	17
Figure 3 – Illustration of the measurement of concentricity.....	17
Figure 4 – Illustration of the measurement of perpendicularity	18
Figure 5 – Illustration of the measurement of parallelism	18
Figure 6 – Illustration of parallelism of keyway.....	19
Figure 7 – Illustration of lateral displacement of keyway	19

Table 1 – Dimensions for machines with shaft height from 56 mm to 400 mm	11
Table 2 – Dimensions and tolerances for flanges with pitch circle diameters from 55 mm to 1 080 mm	12
Table 3 – Dimensions and tolerances for shaft ends	14
Table 4 – Tolerance for parallelism shaft to foot face	16
Table 5 – Tolerance for parallelism of keyway to shaft axis	16
Table 6 – Preferred rated output values	20
Table 7 – Totally enclosed fan-cooled induction motors (IC41) with squirrel-cage rotor	21
Table 8 – Totally enclosed fan cooled induction motors (IC41) with slip ring rotor	22
Table 9 – Ventilated induction motors (IC01) with squirrel-cage rotor	23
Table 10 – Ventilated induction motors (IC01) with slip ring rotor	23
Table A.1 – Relationships between frame size and rated output for 50 Hz increased safety "eb"	24
Table B.1 – Additional frame letters and B dimensions in mm	25

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ROTATING ELECTRICAL MACHINES –
DIMENSIONS AND OUTPUT SERIES –**

**Part 1: Frame numbers 56 to 400 and flange
numbers 55 to 1080**

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 60072-1 has been prepared by IEC technical committee 2: Rotating machinery.

This seventh edition cancels and replaces the sixth edition published in 1991. This edition constitutes a technical revision.

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

- a) modification of the series title;
- b) complete revision on the basis of EN 50347;
- c) integration of the relationships between frame size, shaft extensions, rated outputs and flange numbers;
- d) additional tolerances and measurements for shafts;

- e) modification of Annex A with additional frame numbers and relationships between frame size and rated power.

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

Draft	Report on voting
2/2059/CDV	2/2082/RVC

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.

A list of all parts in the IEC 60072 series, published under the general title *Rotating electrical machines – Dimensions and output series*, can be found on the IEC website.

Future documents in this series will carry the new general title as cited above. Titles of existing documents in this series will be updated at the time of the next edition.

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/standardsdev/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,
- replaced by a revised edition, or
- amended.

ROTATING ELECTRICAL MACHINES – DIMENSIONS AND OUTPUT SERIES –

Part 1: Frame numbers 56 to 400 and flange numbers 55 to 1080

1 Scope

This part of IEC 60072 is applicable for the majority of rotating electrical machines for industrial purposes within the dimension range and output powers:

Foot- mounted: shaft heights: 56 mm to 400 mm.

Flange- mounted: pitch circle diameter of flange: 55 mm to 1 080 mm.

It specifies the fixing dimensions, shaft extension dimensions and the assignment of output powers and frame sizes.

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 60079-0, *Explosive atmospheres – Part 0: Equipment – General requirements*

ISO 128-3:2020, *Technical product documentation (TPD) – General principles of representation – Part 3: Views, sections and cuts*

ISO 273, *Fasteners – Clearance holes for bolts and screws*

ISO 286 (all parts), *Geometrical product specifications (GPS) – ISO code system for tolerances on linear sizes*

ISO 1101, *Geometrical product specifications (GPS) – Geometrical tolerancing – Tolerances of form, orientation, location and run-out*

ISO 2768-1, *General tolerances – Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

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

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-