



BSI Standards Publication

Classification of environmental conditions

Part 3-2: Classification of groups of environmental parameters
and their severities - Transportation and Handling

National foreword

This British Standard is the UK implementation of EN IEC 60721-3-2:2018. It is identical to IEC 60721-3-2:2018. It supersedes BS EN 60721-3-2:1997, which will be withdrawn on 30 March 2021.

The UK participation in its preparation was entrusted to Technical Committee GEL/104, Environmental conditions, classification and testing.

A list of organizations represented on this committee can be obtained on request to its secretary.

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

© The British Standards Institution 2018
Published by BSI Standards Limited 2018

ISBN 978 0 580 82597 2

ICS 19.040

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 April 2018.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

EUROPEAN STANDARD

EN IEC 60721-3-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2018

ICS 19.040

Supersedes EN 60721-3-2:1997

English Version

**Classification of environmental conditions - Part 3-2:
Classification of groups of environmental parameters and their
severities - Transportation and Handling
(IEC 60721-3-2:2018)**

Classification des conditions d'environnement - Partie 3-2:
Classification des groupements des agents
d'environnement et de leurs sévérités - Transport et
manutention
(IEC 60721-3-2:2018)

Klassifizierung von Umgebungsbedingungen - Teil 3-2:
Klassifizierung von Einflussgrößen in Gruppen und deren
Schärfegrade - Transport und Handhabung
(IEC 60721-3-2:2018)

This European Standard was approved by CENELEC on 2018-03-30. 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, 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

European foreword

The text of document 104/773/FDIS, future edition 3 of IEC 60721-3-2, prepared by IEC/TC 104 "Environmental conditions, classification, and methods of test" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60721-3-2:2018.

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) 2018-12-30
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-03-30

This document supersedes EN 60721-3-2:1997.

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.

Endorsement notice

The text of the International Standard IEC 60721-3-2:2018 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 60721-2 (series)	NOTE	Harmonized as EN 60721-2 (series).
IEC 60721-2-1	NOTE	Harmonized as EN 60721-2-1.
IEC 60721-2-2	NOTE	Harmonized as EN 60721-2-2.
IEC 60721-2-3	NOTE	Harmonized as EN 60721-2-3.
IEC 60721-2-9	NOTE	Harmonized as EN 60721-2-9.
IEC 60721-3 (series)	NOTE	Harmonized as EN 60721-3 (series).
IEC 60721-3-0	NOTE	Harmonized as EN 60721-3-0.
IEC 60721-3-1	NOTE	Harmonized as EN 60721-3-1.

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 60721-1	-	Classification of environmental conditions - EN 60721-1 - Part 1: Environmental parameters and their severities		-

CONTENTS

FOREWORD	3
1 Scope and object	5
2 Normative references	5
3 Terms and definitions	5
4 General	6
5 Classification of groups of environmental parameters and their severities	7
5.1 General	7
5.2 K Climatic conditions	7
5.3 B Biological conditions	9
5.4 C Chemically active substances	9
5.5 S Mechanically active substances	10
5.6 M Mechanical conditions	11
Annex A (informative) Chemically active substances	15
Bibliography	16
Figure 1 – Consolidation of vibration conditions	13
Figure 2 – Consolidation of mechanical conditions	14
Table 1 – Classification of climatic conditions	8
Table 2 – Classification of biological conditions	9
Table 3 – Classification of chemically active substances	10
Table 4 – Classification of mechanically active substances	11
Table 5 – Classification of mechanical conditions	11

INTERNATIONAL ELECTROTECHNICAL COMMISSION

CLASSIFICATION OF ENVIRONMENTAL CONDITIONS –**Part 3-2: Classification of groups of environmental parameters
and their severities –
Transportation and handling**

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 60721-3-2 has been prepared by IEC technical committee 104: Environmental conditions, classification, and methods of test.

This third edition cancels and replaces the second edition, published in 1997, and constitutes a technical revision.

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

- a) Clause 1: reworded and added handling.
- b) Clause 2: updated normative references.
- c) Clause 3: updated definitions.
- d) Clause 4: reworded and simplified.

- e) Clause 5: revised and updated. Several classes have been replaced by completely new classes based on the use of new information obtained from referenced Technical Reports.
- f) Table 1 through Table 5: updated.
- g) Table 6 added.
- h) Old annexes A to C removed except Clause A.3 that is incorporated in Clause 5.
- i) New Annex A.

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

FDIS	Report on voting
104/773/FDIS	104/783/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 60721 series, published under the general title *Classification of environmental conditions*, 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

CLASSIFICATION OF ENVIRONMENTAL CONDITIONS –

Part 3-2: Classification of groups of environmental parameters and their severities – Transportation and handling

1 Scope and object

This part of IEC 60721 classifies the groups of environmental parameters and their severities to which a product is subjected while being transported and handled.

The most commonly used methods of transportation and handling have been taken into account, including the following:

- road transport: cars, trucks;
- rail transport: trains, trams;
- water transport, inland and maritime: ships;
- air transport: aircraft, jet, propeller, helicopter;
- handling equipment: cranes, transport lifts, cableways, persons;
- conveyors;
- hand trollies.

The environmental conditions specified in this document are those that the product can be exposed to while transported and handled. If the product is packaged, the environmental conditions apply to the package containing the product. If the product is unpackaged, the environmental conditions apply to the product.

Conditions for storage are given in IEC 60721-3-1.

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 60721-1, *Classification of environmental conditions – Part 1: Environmental parameters and their severities*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60721-1 and the following 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>