



**SLOVENSKI STANDARD**  
**SIST EN 61969-1:2002**

**01-september-2002**

---

**Mechanical structures for electronic equipment - Outdoor enclosures - Part 1:  
Design guidelines (IEC 61969-1:1999)**

Mechanical structures for electronic equipment - Outdoor enclosures -- Part 1: Design guidelines

Mechanische Bauweisen für elektronische Einrichtungen - Außengehäuse -- Teil 1:  
Konstruktionsleitfaden

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

Structures mécaniques pour équipement électronique - Enveloppes de plein air -- Partie  
1: Guide de conception

[SIST EN 61969-1:2002](https://standards.iteh.ai/catalog/standards/sist/0db2353c-7f67-4ec6-8a9f-c92cc5781754/sist-en-61969-1-2002)

[https://standards.iteh.ai/catalog/standards/sist/0db2353c-7f67-4ec6-8a9f-](https://standards.iteh.ai/catalog/standards/sist/0db2353c-7f67-4ec6-8a9f-c92cc5781754/sist-en-61969-1-2002)

[c92cc5781754/sist-en-61969-1-2002](https://standards.iteh.ai/catalog/standards/sist/0db2353c-7f67-4ec6-8a9f-c92cc5781754/sist-en-61969-1-2002)

**Ta slovenski standard je istoveten z: EN 61969-1:2000**

---

**ICS:**

31.240

Mehanske konstrukcije za  
elektronsko opremo

Mechanical structures for  
electronic equipment

**SIST EN 61969-1:2002**

**en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 61969-1:2002

<https://standards.iteh.ai/catalog/standards/sist/0db2353c-7f67-4ec6-8a9f-c92cc5781754/sist-en-61969-1-2002>

EUROPEAN STANDARD

**EN 61969-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2000

ICS 31.240

English version

**Mechanical structures for electronic equipment - Outdoor enclosures**  
**Part 1: Design guidelines**  
(IEC 61969-1:1999)

Structures mécaniques pour équipement  
électronique - Enveloppes de plein air  
Partie 1: Guide de conception  
(CEI 61969-1:1999)

Mechanische Bauweisen für  
elektronische Einrichtungen  
Außengehäuse  
Teil 1: Konstruktionsleitfaden  
(IEC 61969-1:1999)

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 61969-1:2002

<https://standards.iteh.ai/catalog/standards/sist/0db2353c-7f67-4ec6-8a9f-c92cc5781754/sist-en-61969-1-2002>

This European Standard was approved by CENELEC on 2000-02-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

## CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

### Foreword

The text of document 48D/211/FDIS, future edition 1 of IEC 61969-1, prepared by SC 48D, Mechanical structures for electronic equipment, of IEC TC 48, Electromechanical components and mechanical structures for electronic equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61969-1 on 2000-02-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2000-11-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2003-02-01

Annexes designated "normative" are part of the body of the standard.  
In this standard, annex ZA is normative.  
Annex ZA has been added by CENELEC.

---

### Endorsement notice

The text of the International Standard IEC 61969-1:1999 was approved by CENELEC as a European Standard without any modification.

SIST EN 61969-1:2002

<https://standards.iteh.ai/catalog/standards/sist/0db2353c-7f67-4ec6-8a9f-c92cc5781754/sist-en-61969-1-2002>

## Annex ZA (normative)

Normative references to international publications  
with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-581	1978	International Electrotechnical Vocabulary (IEV) - Chapter 581: Electromechanical components for electronic equipment	-	-
IEC 60068	Series	Environmental testing	EN 60068	Series
IEC 60297-3	1984	Dimensions of mechanical structures of the 482,6 mm (19 in) series Part 3: Subracks and associated plug-in units	HD 493.3 S2 <sup>1)</sup>	1993
IEC 60417	Series	Graphical symbols for use on equipment	EN 60417	Series
IEC 60721	Series	Classification of environmental conditions	EN 60721	Series
IEC 60917	Series	Modular order for the development of mechanical structures for electronic equipment practices	EN 60917	Series
IEC 60917-2-2	1994	Part 2: Sectional specification - Interface co-ordination dimensions for the 25 mm equipment practice -- Section 2: Detail specification - Dimensions for subracks, chassis, backplanes, front panels and plug-in units	EN 60917-2-2	1996
IEC 61587-1	1999	Mechanical structures for electronic equipment - Tests for IEC 60917 and IEC 60297 Part 1: Climatic, mechanical tests and safety aspects for cabinets, racks, subracks and chassis	EN 61587-1	1999
IEC 61587-2	<sup>2)</sup>	Part 2: Seismic tests for cabinets and racks	-	-

1) HD 493.3 S2 is based on IEC 60297-3:1984+A1:1992

2) In preparation

Page 4  
EN 61969-1:2000

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61587-3	1999	Part 3: Electromagnetic shielding performance tests for cabinets, racks and subracks	-	-
IEC 61969	Series	Mechanical structures for electronic equipment - Outdoor enclosures	EN 61969	Series
ISO 3864	1984	Safety colours and safety signs	-	-

## iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 61969-1:2002

<https://standards.iteh.ai/catalog/standards/sist/0db2353c-7f67-4ec6-8a9f-c92cc5781754/sist-en-61969-1-2002>

NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD

CEI  
IEC

61969-1

Première édition  
First edition  
1999-12

**Structures mécaniques pour équipement  
électronique – Enveloppes de plein air –**

**Partie 1:  
Guide de conception**

**iTeh STANDARD PREVIEW**

**Mechanical structures for electronic equipment –  
Outdoor enclosures –**

SIST EN 61969-1:2002

[https://standards.iteh.ai/catalog/standards/sist/0db2353c-7f67-4ec6-8a9f-](https://standards.iteh.ai/catalog/standards/sist/0db2353c-7f67-4ec6-8a9f-c92cc5781754/sist-en-61969-1-2002)

**Part 1:  
Design guidelines**

© IEC 1999 Droits de reproduction réservés — Copyright - all rights reserved

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'éditeur.

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 the publisher.

International Electrotechnical Commission  
Telefax: +41 22 919 0300

3, rue de Varembé Geneva, Switzerland  
IEC web site <http://www.iec.ch>



Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

CODE PRIX  
PRICE CODE

L

Pour prix, voir catalogue en vigueur  
For price, see current catalogue

## CONTENTS

	Page
FOREWORD .....	5
INTRODUCTION .....	9
Clause	
1 Scope .....	11
2 Normative references .....	13
3 Terms and definitions .....	15
4 Fields of application .....	15
5 Dimensional specifications .....	17
6 Climatic, mechanical and safety aspects.....	17
6.1 General.....	17
6.2 Load strength.....	17
6.3 Lifting test.....	17
6.4 Vibration and shock.....	17
6.5 Seismic.....	17
7 Electromagnetic shielding performance.....	21
8 Thermal properties.....	21
Figure 1 – Arrangement overview.....	11
Figure 2 – Locations of outdoor enclosures.....	15
Table 1 – Environmental conditions.....	19
Table 2 – Safety aspects .....	19
Bibliography .....	23

Iteh STANDARD PREVIEW  
(standards.iteh.ai)

[SIST.EN.61969.1:2002](https://standards.iteh.ai/catalog/standards/sist/0db2353c-7f67-4ec6-8a9f-c92cc5781754/sist-en-61969-1-2002)

<https://standards.iteh.ai/catalog/standards/sist/0db2353c-7f67-4ec6-8a9f-c92cc5781754/sist-en-61969-1-2002>



## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MECHANICAL STRUCTURES FOR ELECTRONIC EQUIPMENT –  
OUTDOOR ENCLOSURES –****Part 1: Design guidelines**

## FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a world-wide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61969-1 has been prepared by subcommittee 48D: Mechanical structures for electronic equipment, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment.

The text of this standard is based on the following documents:

FDIS	Report on voting
48D/211/FDIS	48D/217/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

IEC 61969 contains the following parts, under the general title: Mechanical structures for electronic equipment – Outdoor enclosures:

- Part 1: Design guidelines
- Part 2: Sectional specification – Co-ordination dimensions for cases and cabinets
- Part 2-1: Detail specification – Dimensions for cabinets
- Part 2-2: Detail specification – Dimensions for cases