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colour inside

Boxes and enclosures for electrical accessories for household and similar fixed electrical installations –
Part 1: General requirements

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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BOXES AND ENCLOSURES FOR ELECTRICAL ACCESSORIES FOR HOUSEHOLD AND SIMILAR FIXED ELECTRICAL INSTALLATIONS –

Part 1: General requirements

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.
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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 60670-1:2015. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

IEC 60670-1 has been prepared by subcommittee 23B: Plugs, socket-outlets and switches, of IEC technical committee 23: Electrical accessories. It is an International Standard.

This third edition cancels and replaces the second edition published in 2015. This edition constitutes a technical revision.

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

a) the classifications, markings and tests of boxes and enclosures for use and installation in ambient temperature below normal use are modified;
b) the test for the durability of markings is modified;
c) a test is added for fixing screws protected by caps;
d) a normative annex is added to specify the tests applied to boxes and enclosures declared with an IK code;
e) requirements for the resistance to abnormal heat and fire of internal parts not necessary to retain current carrying parts are specified.

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

Draft	Report on voting
23B/1533/FDIS	23B/1551/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. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

In this publication the following print types are used:

- requirements proper: in roman type.
- *test specifications: in italic type*.
- notes: in smaller roman type.

A list of all parts in the IEC 60670 series, published under the general title *Boxes and enclosures for electrical accessories for household and similar fixed installations*, 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 in the data related to the specific document. At this date, the document will be

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- withdrawn, or
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BOXES AND ENCLOSURES FOR ELECTRICAL ACCESSORIES FOR HOUSEHOLD AND SIMILAR FIXED ELECTRICAL INSTALLATIONS –

Part 1: General requirements

1 Scope

This part of IEC 60670 applies to boxes, enclosures and parts of enclosures (hereafter called "boxes" and "enclosures") for electrical accessories with a rated voltage not exceeding 1 000 V AC and 1 500 V DC intended for household or similar fixed electrical installations, either indoors or outdoors.

Boxes and enclosures complying with this document are suitable for use at ambient temperatures not normally exceeding +40 °C, but their average over a period of 24 h does not exceed +35 °C, with a lower limit of the ambient air temperature of −5 °C.

~~During the installation the temperature may be outside the above temperature range according to the classification of the boxes and the enclosures.~~

Other temperatures outside the above range can apply according to the classification of the boxes and the enclosures.

This document is intended to apply to boxes and enclosures for electrical accessories within the scope of IEC technical committee 23.

~~This standard may be used as a reference document for other IEC technical committees and subcommittees.~~

A box or an enclosure which is an integral part of an electrical accessory and provides protection for that accessory against external influences (for example mechanical impact, ingress of solid objects or water, etc.) is covered by the relevant standard for such an accessory.

This document gives test requirements for boxes and enclosures declared with IK code, see Annex B (normative).

This document also applies to types of boxes and enclosures as modified in IEC 60670-21, IEC 60670-22, IEC 60670-23, and IEC 60670-24.

This document does not apply to:

– ceiling roses;
– luminaire supporting couplers;
– boxes, enclosures and parts of enclosures specifically designed to be used for cable trunking and ducting systems complying with IEC 61084 and which are not intended to be installed outside of these systems.

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 60068-2-75:~~1997~~ [1]2014, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 60112:~~2003~~2020, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60417, *Graphical symbols for use on equipment,* available at http://www.graphical-symbols.info/equipment

IEC 60423:2007, *Conduit systems for cable management – Outside diameters of conduits for electrical installations and threads for conduits and fittings*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*
IEC 60529:1989/AMD1:1999
IEC 60529:1989/AMD2:2013

IEC 60695-2-11:~~2000~~ [2]2021, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products*

IEC 60695-10-2:~~2003~~ [3]2014, *Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test*

IEC 60981:~~2004~~2019, *Extra-heavy duty rigid steel conduits*

IEC 61032:1997, *Protection of persons and equipment by enclosures – Probes for verification*

IEC 61140:~~2001~~2016, *Protection against electric shock – Common aspects for installation and equipment*

~~IEC 61140:2001/AMD1:2004, *Protection against electric shock – Common aspects for installation and equipment*~~

IEC 62262:2002, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*
IEC 62262:2002/AMD1:2021

ISO/IEC Guide 51, *Safety aspects – Guidelines for their inclusion in standards*

~~[1] First edition. This edition has been replaced in 2014 by IEC 60068-2-75:2014, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*~~

~~[2] First edition. This edition has been replaced in 2014 by IEC 60695-2-11:2014, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)*~~

~~[3] Second edition. This edition has been replaced in 2014 by IEC 60695-10-2:2014, *Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test method*~~

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Edition 3.0 2024-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Boxes and enclosures for electrical accessories for household and similar fixed electrical installations –
Part 1: General requirements

Boîtes et enveloppes pour appareillage électrique pour installations électriques fixes pour usages domestiques et analogues –
Partie 1: Exigences générales



IEC 60670-1:2024-12(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Part 1: General requirements

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a) the classifications, markings and tests of boxes and enclosures for use and installation in ambient temperature below normal use are modified;
b) the test for the durability of markings is modified;
c) a test is added for fixing screws protected by caps;

d) a normative annex is added to specify the tests applied to boxes and enclosures declared with an IK code;

e) requirements for the resistance to abnormal heat and fire of internal parts not necessary to retain current carrying parts are specified.

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Draft	Report on voting
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Part 1: General requirements

1 Scope

This part of IEC 60670 applies to boxes, enclosures and parts of enclosures (hereafter called "boxes" and "enclosures") for electrical accessories with a rated voltage not exceeding 1 000 V AC and 1 500 V DC intended for household or similar fixed electrical installations, either indoors or outdoors.

Boxes and enclosures complying with this document are suitable for use at ambient temperatures not normally exceeding +40 °C, but their average over a period of 24 h does not exceed +35 °C, with a lower limit of the ambient air temperature of −5 °C.

Other temperatures outside the above range can apply according to the classification of the boxes and the enclosures.

This document is intended to apply to boxes and enclosures for electrical accessories within the scope of IEC technical committee 23.

A box or an enclosure which is an integral part of an electrical accessory and provides protection for that accessory against external influences (for example mechanical impact, ingress of solid objects or water, etc.) is covered by the relevant standard for such an accessory.

This document gives test requirements for boxes and enclosures declared with IK code, see Annex B (normative).

This document also applies to types of boxes and enclosures as modified in IEC 60670-21, IEC 60670-22, IEC 60670-23, and IEC 60670-24.

This document does not apply to:

– ceiling roses;
– luminaire supporting couplers;
– boxes, enclosures and parts of enclosures specifically designed to be used for cable trunking and ducting systems complying with IEC 61084 and which are not intended to be installed outside of these systems.

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.

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IEC 60112:2020, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60417, *Graphical symbols for use on equipment,* available at http://www.graphical-symbols.info/equipment

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IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*
IEC 60529:1989/AMD1:1999
IEC 60529:1989/AMD2:2013

IEC 60695-2-11:2021, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products*

IEC 60695-10-2:2014, *Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test*

IEC 60981:2019, *Extra-heavy duty rigid steel conduits*

IEC 61032:1997, *Protection of persons and equipment by enclosures – Probes for verification*

IEC 61140:2016, *Protection against electric shock – Common aspects for installation and equipment*

IEC 62262:2002, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*
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ISO/IEC Guide 51, *Safety aspects – Guidelines for their inclusion in standards*

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

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BOÎTES ET ENVELOPPES POUR APPAREILLAGE ÉLECTRIQUE POUR INSTALLATIONS ÉLECTRIQUES FIXES POUR USAGES DOMESTIQUES ET ANALOGUES –

Partie 1: Exigences générales

AVANT-PROPOS

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L'IEC 60670-1 a été établie par le sous-comité 23B: Prises de courant et interrupteurs, du comité d'études 23 de l'IEC: Petit appareillage. Il s'agit d'une Norme internationale.

Cette troisième édition annule et remplace la deuxième édition parue en 2015. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

a) les classifications, marquages et essais des boîtes et enveloppes destinées à être utilisées et installées à une température ambiante inférieure à la normale ont été modifiés;

b) l'essai de durabilité des marquages a été modifié;

c) un essai a été ajouté pour les vis de fixation protégées par des bouchons;

d) une annexe normative a été ajoutée pour spécifier les essais appliqués aux boîtes et enveloppes déclarées avec un code IK;

e) des exigences ont été spécifiées pour la résistance à la chaleur anormale et au feu des parties internes qui ne sont pas nécessaires au maintien en place des pièces sous tension.

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
23B/1533/FDIS	23B/1551/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

La version française n'a pas été soumise au vote.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous www.iec.ch/members_experts/refdocs. Les principaux types de documents développés par l'IEC sont décrits plus en détail sous www.iec.ch/standardsdev/publications.

Dans la présente publication, les caractères d'imprimerie suivants sont utilisés:

- exigences proprement dites: caractères romains;
- *modalités d'essais: caractères italiques*;
- notes: petits caractères romains.

Une liste de toutes les parties de la série IEC 60670, publiées sous le titre général *Boîtes et enveloppes pour appareillage électrique pour installations fixes pour usages domestiques et analogues*, se trouve sur le site web de l'IEC.

Le comité a décidé que le contenu de ce document ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous webstore.iec.ch dans les données relatives au document recherché. À cette date, le document sera

- reconduit,
- supprimé, ou
- révisé.

BOÎTES ET ENVELOPPES POUR APPAREILLAGE ÉLECTRIQUE POUR INSTALLATIONS ÉLECTRIQUES FIXES POUR USAGES DOMESTIQUES ET ANALOGUES –

Partie 1: Exigences générales

1 Domaine d'application

La présente partie de l'IEC 60670 s'applique aux boîtes, enveloppes et parties d'enveloppes (ci-après désignées par les termes "boîtes" et "enveloppes") pour appareillages électriques dont la tension assignée ne dépasse pas 1 000 V en courant alternatif et 1 500 V en courant continu pour installations électriques fixes pour usages domestiques et analogues, en intérieur ou en extérieur.

Les boîtes et enveloppes conformes au présent document sont adaptés à un usage à des températures ambiantes qui ne dépassent pas habituellement +40 °C, mais dont la moyenne sur une période de 24 h ne dépasse pas +35 °C, avec une limite basse de la température ambiante de −5 °C.

D'autres températures situées en dehors de la plage ci-dessus peuvent s'appliquer selon la classification des boîtes et enveloppes.

Le présent document est destiné à s'appliquer aux boîtes et enveloppes pour appareillage électrique relevant du domaine d'application du comité d'études 23 de l'IEC.

Les boîtes et enveloppes qui font partie intégrante d'un appareillage électrique et qui assurent la protection de cet appareillage contre les influences externes (par exemple, chocs mécaniques, pénétration de corps solides ou de l'eau, etc.) sont couvertes par la norme pertinente pour cet appareillage.

Le présent document fournit des exigences d'essai pour les boîtes et enveloppes déclarées avec un code IK, voir l'Annexe B (normative).

Le présent document s'applique également aux types de boîtes et d'enveloppes, selon les modifications apportées à l'IEC 60670-21, l'IEC 60670-22, l'IEC 60670-23 et l'IEC 60670-24.

Le présent document ne s'applique pas aux:

– rosaces de plafond;
– connecteurs supports de luminaires;
– boîtes, enveloppes et parties d'enveloppes spécifiquement conçues pour être utilisées dans les systèmes de goulottes et de conduits profilés conformes à l'IEC 61084 et qui ne sont pas prévues pour être installées en dehors de ces systèmes.

2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60068-2-75:2014, *Essais d'environnement – Partie 2-75: Essais – Test Eh: Essais au marteau*

IEC 60112:2020, *Méthode de détermination des indices de résistance et de tenue au cheminement des matériaux isolants solides*

IEC 60417, *Symboles graphiques utilisables sur le matériel*, disponible à l'adresse http://www.graphical-symbols.info/equipment

IEC 60423:2007, *Systèmes de conduits pour la gestion du câblage – Diamètres extérieurs des conduits pour installations électriques et filetages pour conduits et accessoires*

IEC 60529:1989, *Degrés de protection procurés par les enveloppes (Code IP)*
IEC 60529:1989/AMD1:1999
IEC 60529:1989/AMD2:2013

IEC 60695-2-11:2021, *Essais relatifs aux risques du feu – Partie 2-11: Essais au fil incandescent/chauffant – Méthode d'essai d'inflammabilité pour produits finis*

IEC 60695-10-2:2014, *Essais relatifs aux risques du feu – Partie 10-2: Chaleurs anormales – Essai à la bille*

IEC 60981:2019, *Extra-heavy duty rigid steel conduits* (disponible en anglais seulement)

IEC 61032:1997, *Protection des personnes et des matériels par les enveloppes – Calibres d'essai pour la vérification*

IEC 61140:2016, *Protection contre les chocs électriques – Aspects communs aux installations et aux matériels*

IEC 62262:2002, *Degrés de protection procurés par les enveloppes de matériels électriques contre les impacts mécaniques externes (code IK)*
IEC 62262:2002/AMD1:2021

Guide 51 de l'ISO/IEC, *Aspects liés à la sécurité – Principes directeurs pour les inclure dans les normes*