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INTERNATIONAL STANDARD

colour inside

This full version of IEC 60670-24:2024 includes the content of the references made to IEC 60670-1:2024

Boxes and enclosures for electrical accessories for household and similar fixed electrical installations –
Part 24: Particular requirements for enclosures for housing protective devices and other power dissipating electrical equipment

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 24: Particular requirements for enclosures for housing protective devices and other power dissipating electrical equipment

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.
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IEC 60670-24:2024 EXV includes the content of IEC 60670-24:2024, and the references made to IEC 60670-1:2024.

The specific content of IEC 60670-24:2024 is displayed on a blue background.

IEC 60670-24 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 2011. This edition constitutes a technical revision.

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

a) revision of requirements for protection against electric shock in Clause 10;
b) addition of requirements for functional earthing in 11.101;
c) revision of the requirements for fixing of flush type and semi-flush type enclosures in 12.12;
d) revision of the requirements for resistance of insulating material to abnormal heat and to fire in Clause 18;
e) addition of calculations to take into account the power loss of electronic devices in Clause AA.6;
f) addition of tests and requirements for enclosures exposed to direct sunlight with the related Annex CC;
g) addition of tests and requirements for enclosures with separate area to accommodate multimedia-equipment with the related Annex DD;
h) addition of tests and requirements for enclosures used with connected devices or equipment with the related Annex EE.

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

Draft	Report on voting
23B/1536/FDIS	23B/1554/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.

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.

This document is to be used in conjunction with IEC 60670-1:2024. It lists the changes necessary to convert that standard into a specific standard for housing protective devices and other power dissipating electrical equipment.

Where this document states "addition", "modification" or "replacement", the relevant requirement, test specifications or explanatory matter in IEC 60670-1:2024 shall be adapted accordingly.

Clauses and subclauses, notes, figures or tables which are additional to those in IEC 60670-1:2024 are numbered starting from 101.

Additional annexes to IEC 60670-1:2024 are numbered AA, BB, etc.

In this publication the following print types are used:

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

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

Part 24: Particular requirements for enclosures for housing protective devices and other power dissipating electrical equipment

1 Scope

This part of IEC 60670 applies to enclosures and parts of them for housing protective devices and other power dissipating electrical equipment intended to be used with a rated voltage not exceeding 400 V and a total incoming load current not exceeding 125 A for household and similar fixed electrical installations.

These enclosures are intended to be installed in locations where unskilled persons have access. They are intended to be equipped with electrical equipment by skilled persons (installers).

These enclosures are intended to be installed where the prospective short circuit current does not exceed 10 kA unless they are protected by current limiting protective devices with a cut-off current not exceeding 17 kA.

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

An enclosure which is an integral part of an electrical accessory and provides protection against external influences (e.g. mechanical impacts, ingress of solid objects or of water), is covered by the relevant standard for such an accessory.

This document does not apply to a low-voltage switchgear and controlgear assembly as defined in the IEC 60439 series or IEC 61439 series nor to a main entrance panel which can be part of the distribution board.

This document does not apply to surface type boxes, flush and semi-flush type boxes suitable for the housing of accessories for household and similar use such as switches, electronic switches, socket-outlets, which are covered by IEC 60670-1 only.

NOTE 1 Enclosures according to this document are mainly used for distribution board for housing protective devices and other power dissipating electrical equipment and are installed at the beginning of the electrical circuit whereas boxes according to IEC 60670-1 are installed at the end of it.

NOTE 2 A main entrance panel is a set composed of a panel or an enclosure equipped with a meter and/or the main incoming device. Main entrance panels comply with their appropriate standards or the requirements of the local supplier, if any.

NOTE 3 In the following country this document cannot be used in installations with a 230 V single-phase supply rated up to 100 A that is under the control of ordinary persons. Integration of mechanical and electrical devices into an enclosure must be verified by compliance with IEC 61439-3 [British standard EN 61439-3]: UK.

NOTE 4 In the following country this document can only be used for GP enclosures with the instructions according to Annex A. For the other types of enclosures the integration of mechanical and electrical devices into an enclosure is verified by compliance with DS EN 61439-3: DK.

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 60068-2-75:2014, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

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

IEC 60364-4-41:2005, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock*
IEC 60364-4-41:2005/AMD1:2017

IEC 60364-5-54:2011, *Low-voltage electrical installations – Part 5-54: Selection and erection of electrical equipment – Earthing arrangements and protective conductors*
IEC 60364-5-54:2011/AMD1:2021

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 60664-1, *Insulation coordination for equipment within low-voltage supply systems – Part 1: Principles, requirements and tests*

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 60898-1, *Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations – Part 1: Circuit-breakers for a.c. operation*

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

IEC 61008-2-1, *Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCB's) – Part 2-1: Applicability of the general rules to RCCB's functionally independent of line voltage*

IEC 61009-2-1, *Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBO's) – Part 2-1: Applicability of the general rules to RCBO's functionally independent of line voltage*

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)*
IEC 62262:2002/AMD1:2021

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

ISO/IEC 11801-1:2017, *Information technology – Generic cabling for customer premises – Part 1: General requirements*

ISO 178:2019, *Plastics – Determination of flexural properties*

ISO 179-1:2010, *Plastics – Determination of Charpy impact properties – Part 1: Non-instrumented impact test*

ISO 4892-2:2013, *Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps*
ISO 4892-2:2013/AMD1:2021

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Boxes and enclosures for electrical accessories for household and similar fixed electrical installations – Part 24: Particular requirements for enclosures for housing protective devices and other power dissipating electrical equipment

Boîtes et enveloppes pour appareillage électrique pour installations électriques fixes pour usages domestiques et analogues – Partie 24: Exigences particulières pour les enveloppes pour dispositifs de protection et autres matériels électriques ayant une puissance dissipée



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

Part 24: Particular requirements for enclosures for housing protective devices and other power dissipating electrical equipment

1 Scope

Replacement:

This part of IEC 60670 applies to enclosures and parts of them for housing protective devices and other power dissipating electrical equipment intended to be used with a rated voltage not exceeding 400 V and a total incoming load current not exceeding 125 A for household and similar fixed electrical installations.

These enclosures are intended to be installed in locations where unskilled persons have access. They are intended to be equipped with electrical equipment by skilled persons (installers).

These enclosures are intended to be installed where the prospective short circuit current does not exceed 10 kA unless they are protected by current limiting protective devices with a cut-off current not exceeding 17 kA.

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

An enclosure which is an integral part of an electrical accessory and provides protection against external influences (e.g. mechanical impacts, ingress of solid objects or of water), is covered by the relevant standard for such an accessory.

This document does not apply to a low-voltage switchgear and controlgear assembly as defined in the IEC 60439 series or IEC 61439 series nor to a main entrance panel which can be part of the distribution board.

This document does not apply to surface type boxes, flush and semi-flush type boxes suitable for the housing of accessories for household and similar use such as switches, electronic switches, socket-outlets, which are covered by IEC 60670-1 only.

NOTE 1 Enclosures according to this document are mainly used for distribution board for housing protective devices and other power dissipating electrical equipment and are installed at the beginning of the electrical circuit whereas boxes according to IEC 60670-1 are installed at the end of it.

NOTE 2 A main entrance panel is a set composed of a panel or an enclosure equipped with a meter and/or the main incoming device. Main entrance panels comply with their appropriate standards or the requirements of the local supplier, if any.

NOTE 3 In the following country this document cannot be used in installations with a 230 V single-phase supply rated up to 100 A that is under the control of ordinary persons. Integration of mechanical and electrical devices into an enclosure must be verified by compliance with IEC 61439-3 [British standard EN 61439-3]: UK.

NOTE 4 In the following country this document can only be used for GP enclosures with the instructions according to Annex A. For the other types of enclosures the integration of mechanical and electrical devices into an enclosure is verified by compliance with DS EN 61439-3: DK.

2 Normative references

Addition:

IEC 60364-4-41:2005, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock*
IEC 60364-4-41:2005/AMD1:2017

IEC 60364-5-54:2011, *Low-voltage electrical installations – Part 5-54: Selection and erection of electrical equipment – Earthing arrangements and protective conductors*
IEC 60364-5-54:2011/AMD1:2021

IEC 60664-1, *Insulation coordination for equipment within low-voltage supply systems – Part 1: Principles, requirements and tests*

IEC 60898-1, *Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations – Part 1: Circuit-breakers for a.c. operation*

IEC 61008-2-1, *Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCB's) – Part 2-1: Applicability of the general rules to RCCB's functionally independent of line voltage*

IEC 61009-2-1, *Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBO's) – Part 2-1: Applicability of the general rules to RCBO's functionally independent of line voltage*

ISO/IEC 11801-1:2017, *Information technology – Generic cabling for customer premises – Part 1: General requirements*

ISO 178:2019, *Plastics – Determination of flexural properties*

ISO 179-1:2010, *Plastics – Determination of Charpy impact properties – Part 1: Non-instrumented impact test*

ISO 4892-2:2013, *Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps*
ISO 4892-2:2013/AMD1:2021

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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 24: Exigences particulières pour les enveloppes pour dispositifs de protection et autres matériels électriques ayant une puissance dissipée

AVANT-PROPOS

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L'IEC 60670-24 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 2011. Cette édition constitue une révision technique.

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

a) les exigences pour la protection contre les chocs électriques à l'Article 10 ont été révisées;
b) des exigences pour la mise à la terre fonctionnelle ont été ajoutées au 11.101;
c) les exigences pour la fixation des enveloppes pour montage encastré et semi-encastré ont été révisées au 12.12;
d) les exigences pour la résistance du matériau isolant à la chaleur anormale et au feu à l'Article 18 ont été révisées;
e) des calculs ont été ajoutés à l'Article AA.6 pour prendre en compte la puissance dissipée par les appareils électroniques;
f) des essais et exigences ont été ajoutés pour les enveloppes exposées à la lumière directe du soleil, ainsi que l'Annexe CC associée;
g) des essais et exigences ont été ajoutés pour les enveloppes avec espace séparé pour accueillir le matériel multimédia, ainsi que l'Annexe DD associée;
h) des essais et exigences ont été ajoutés pour les enveloppes utilisées avec des appareils ou des équipements connectés, ainsi que l'Annexe EE associée.

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

Projet	Rapport de vote
23B/1536/FDIS	23B/1554/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 de la norme 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.

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 présent document doit être utilisé conjointement avec l'IEC 60670-1:2024. Il répertorie les modifications nécessaires pour transformer cette norme en une norme spécifique pour les dispositifs de protection et autres matériels électriques ayant une puissance dissipée.

Lorsque le présent document mentionne "addition", "modification" ou "remplacement", l'exigence, les modalités d'essais ou le texte explicatif correspondant de l'IEC 60670-1:2024 doit être adapté en conséquence.

Les articles et paragraphes, notes, figures ou tableaux qui sont ajoutés à ceux de l'IEC 60670-1:2024 sont numérotés à partir de 101.

Les annexes supplémentaires dans l'IEC 60670-1:2024 sont numérotées AA, BB, etc.

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.

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 24: Exigences particulières pour les enveloppes pour dispositifs de protection et autres matériels électriques ayant une puissance dissipée

1 Domaine d'application

Remplacement:

La présente partie de l'IEC 60670 s'applique aux enveloppes et parties d'enveloppes pour dispositifs de protection et autres matériels électriques ayant une puissance dissipée, destinés à être utilisés avec une tension assignée qui ne dépasse pas 400 V et un courant de charge total à l'arrivée qui ne dépasse pas 125 A pour les installations électriques fixes pour usages domestiques et analogues.

Ces enveloppes sont destinées à être installées dans des lieux accessibles aux personnes non qualifiées. Elles sont destinées à incorporer des matériels électriques montés par des personnes qualifiées (installateurs).

Ces enveloppes sont destinées à être installées dans des lieux où le courant de court-circuit présumé ne dépasse pas 10 kA, sauf si elles sont protégées par des dispositifs de protection limiteurs de courant, avec un courant coupé limité inférieur ou égal à 17 kA.

Les enveloppes conformes au présent document sont adaptées 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.

Une enveloppe qui fait partie intégrante d'un appareillage électrique et qui fournit une protection contre les influences externes (par exemple, chocs mécaniques, pénétration de corps solides ou d'eau) est couverte par la norme pertinente pour cet appareillage.

Le présent document ne s'applique pas à un ensemble d'appareillage à basse tension, tel qu'il est défini dans la série IEC 60439 ou la série IEC 61439, ni à un tableau de distribution principal qui peut faire partie du tableau de répartition.

Le présent document ne s'applique pas aux boîtes pour montage en saillie, pour montage encastré et pour montage semi-encastré adaptées à la protection des appareillages pour usage domestique et analogue tels que les interrupteurs, interrupteurs électroniques et socles de prises de courant, couverts par l'IEC 60670-1 uniquement.

NOTE 1 Les enveloppes conformes au présent document sont essentiellement utilisées comme tableau de répartition pour accueillir des dispositifs de protection et d'autres matériels électriques ayant une puissance dissipée, et sont installées au début du circuit électrique tandis que les boîtes conformes à l'IEC 60670-1 sont installées à la fin du circuit électrique.

NOTE 2 Un tableau de distribution principal est un ensemble composé d'un tableau ou d'une enveloppe, équipé d'un compteur et/ou de l'appareil principal d'arrivée. Les tableaux de distribution principaux satisfont à leurs normes respectives ou aux exigences du fournisseur local, le cas échéant.

NOTE 3 Dans le pays suivant, le présent document ne peut pas être utilisé dans les installations alimentées en 230 V monophasé jusqu'à une puissance assignée de 100 A, qui sont supervisées par des personnes ordinaires. L'intégration de dispositifs mécaniques et électriques dans une enveloppe doit être vérifiée par la conformité à l'IEC 61439-3 [Norme britannique EN 61439-3]: UK.

NOTE 4 Dans le pays suivant, le présent document ne peut être utilisé que pour les enveloppes GP, avec les instructions conformes à l'Annexe A. Pour les autres types d'enveloppes, l'intégration de dispositifs mécaniques et électriques dans une enveloppe est vérifiée par la conformité à la DS EN 61439-3: DK.

2 Références normatives

Addition:

IEC 60364-4-41:2005, *Installations électriques à basse tension – Partie 4-41: Protection pour assurer la sécurité – Protection contre les chocs électriques*
IEC 60364-4-41:2005/AMD1:2017

IEC 60364-5-54:2011, *Installations électriques basse tension – Partie 5-54: Choix et mise en œuvre des matériels électriques – Installations de mise à la terre et conducteurs de protection*
IEC 60364-5-54:2011/AMD1:2021

IEC 60664-1, *Coordination de l'isolement des matériels dans les réseaux d'énergie électrique à basse tension – Partie 1: Principes, exigences et essais*

IEC 60898-1, *Petit appareillage électrique – Disjoncteurs pour la protection contre les surintensités pour installations domestiques et analogues – Partie 1: Disjoncteurs pour le fonctionnement en courant alternatif*

IEC 61008-2-1, *Interrupteurs automatiques à courant différentiel résiduel pour usages domestiques et analogues sans dispositif de protection contre les surintensités incorporé (ID) – Partie 2-1: Applicabilité des règles générales aux ID fonctionnellement indépendants de la tension d'alimentation*

IEC 61009-2-1, *Interrupteurs automatiques à courant différentiel résiduel avec protection contre les surintensités incorporée pour installations domestiques et analogues (DD) – Partie 2-1: Applicabilité des règles générales aux DD fonctionnellement indépendants de la tension d'alimentation*

ISO/IEC 11801-1:2017, *Information technology – Generic cabling for customer premises – Part 1: General requirements* (disponible en anglais seulement)

ISO 178:2019, *Plastiques – Détermination des propriétés en flexion*

ISO 179-1:2010*Plastiques – Détermination des caractéristiques au choc Charpy – Partie 1: Essai de choc non instrumenté*

ISO 4892-2:2013, *Plastiques – Méthodes d'exposition à des sources lumineuses de laboratoire – Partie 2: Lampes à arc au xénon*
ISO 4892-2:2013/AMD1:2021