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REDLINE VERSION

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HORIZONTAL STANDARD

Insulation co-ordination –
Part 1: Definitions, principles and rules

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INSULATION CO-ORDINATION –

Part 1: Definitions, principles and rules

FOREWORD

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International Standard IEC 60071-1 has been prepared by IEC technical committee 99: Insulation co-ordination and system engineering of high voltage electrical power installations above 1,0 kV AC and 1,5 kV DC.

This ninth edition cancels and replaces the eighth edition published in 2006 and Amendment 1:2010. This edition constitutes a technical revision.

It has the status of a horizontal standard in accordance with IEC Guide 108.

The main changes from the previous edition are as follows:

a) all references are updated to current IEC standards, and the bibliography is deleted;
b) some definitions are clarified in order to avoid overlapping and ensure clear understanding;
c) letter symbols are changed and corrected in order to keep the consistency with relevant IEC standards;
d) some titles are changed to clarify understanding (see Clauses A.2, A.3 and Annex B).

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

CDV	Report on voting
99/199/CDV	99/227/RVC

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 publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60071 series, published under the general title *Insulation co-ordination*, can be found on the IEC website.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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INSULATION CO-ORDINATION –

Part 1: Definitions, principles and rules

1 Scope

This part of IEC 60071 applies to three-phase AC systems having a highest voltage for equipment above 1 kV. It specifies the procedure for the selection of the rated withstand voltages for the phase-to-earth, phase-to-phase and longitudinal insulation of the equipment and the installations of these systems. It also gives the lists of the standard withstand voltages from which the rated withstand voltages ~~should be~~ are selected.

This document ~~recommends~~ describes that the selected withstand voltages ~~should be~~ are associated with the highest voltage for equipment. This association is for insulation co-ordination purposes only. The requirements for human safety are not covered by this document.

Although the principles of this document also apply to transmission line insulation, the values of their withstand voltages ~~may~~ can be different from the standard rated withstand voltages.

The apparatus committees are responsible for specifying the rated withstand voltages and the test procedures suitable for the relevant equipment taking into consideration the recommendations of this document.

NOTE In IEC 60071-2, ~~Application Guide,~~ all rules for insulation co-ordination given in this document are justified in detail, in particular the association of the standard rated withstand voltages with the highest voltage for equipment. When more than one set of standard rated withstand voltages is associated with the same highest voltage for equipment, guidance is provided for the selection of the most suitable set.

This horizontal standard is primarily intended for use by technical committees in the preparation of standards in accordance with the principles laid down in IEC Guide 108.

One of the responsibilities of a technical committee is, wherever applicable, to make use of horizontal standards in the preparation of its publications. The contents of this horizontal standard will not apply unless specifically referred to or included in the relevant publications.

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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 60038~~:2002~~, *IEC standard voltages*

IEC 60060-1~~:1989~~, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60071-2, *Insulation co-ordination – Part 2: Application guidelines*

IEC 60099-4, *Surge arresters – Part 4: Metal-oxide surge arresters without gaps for a.c. systems*

~~IEC 60507, *Artificial pollution tests on high-voltage insulators to be used on a.c. systems*~~

~~IEC 60633, *Terminology for high-voltage direct current (HVDC) transmission*~~

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

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HORIZONTAL STANDARD
NORME HORIZONTALE

Insulation co-ordination – Part 1: Definitions, principles and rules

Coordination de l'isolement – Partie 1: Définitions, principes et règles



IEC 60071-1:2019-08(en-fr)

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Partie 1: Définitions, principes et règles

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Cette neuvième édition annule et remplace la huitième édition parue en 2006 et son Amendement 1:2010. Cette édition constitue une révision technique.

Elle a le statut d'une norme horizontale conformément au Guide 108 de l'IEC.

Les principales modifications par rapport à l'édition précédente sont les suivantes:

a) toutes les références ont été mises à jour en faveur des normes IEC actuelles et la bibliographie est supprimée;

b) certaines définitions ont été modifiées afin d'éviter les chevauchements et de favoriser une bonne compréhension;

c) les symboles littéraux ont été modifiés et corrigés afin de garantir la cohérence avec les normes IEC concernées;

d) plusieurs titres ont été modifiés en vue d'une meilleure compréhension (voir les Articles A.2 et A.3, ainsi que l'Annexe B).

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

CDV	Rapport de vote
99/199/CDV	99/227/RVC

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette Norme internationale.

Cette publication a été rédigée selon les Directives ISO/IEC, Partie 2.

Une liste de toutes les parties de la série IEC 60071, publiées sous le titre général *Coordination de l'isolement*, peut être consultée sur le site web de l'IEC.

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COORDINATION DE L'ISOLEMENT –

Partie 1: Définitions, principes et règles

1 Domaine d'application

La présente partie de l'IEC 60071 s'applique aux réseaux à tension alternative triphasée dont la tension la plus élevée pour le matériel est supérieure à 1 kV. Elle spécifie la procédure à suivre pour le choix des tensions de tenue assignées normalisées pour l'isolation phase-terre, l'isolation entre phases et l'isolation longitudinale du matériel et des installations de ces réseaux. Elle donne également les listes des valeurs normalisées parmi lesquelles les tensions de tenue assignées normalisées sont choisies.

Le présent document décrit que les tensions de tenue choisies sont associées aux tensions les plus élevées pour le matériel. Cette association est destinée aux seules fins de la coordination de l'isolement. Les exigences concernant la sécurité des personnes ne sont pas couvertes par le présent document.

Bien que les principes du présent document s'appliquent également à l'isolation des lignes de transport d'énergie, les valeurs des tensions de tenue peuvent être différentes des tensions de tenue assignées normalisées.

Il appartient aux comités de produits de spécifier les tensions de tenue et les procédures d'essai appropriées aux matériels correspondants, en prenant les recommandations du présent document en considération.

NOTE Toutes les règles relatives à la coordination de l'isolement données dans le présent document sont justifiées en détail dans l'IEC 60071-2, en particulier en ce qui concerne l'association des tensions de tenue assignées normalisées avec les tensions les plus élevées pour le matériel. Lorsque plusieurs séries de tensions de tenue assignées normalisées sont associées à la même valeur de la tension la plus élevée pour le matériel, une ligne directrice est donnée pour le choix de la série la plus appropriée.

Cette norme horizontale est essentiellement destinée à l'usage des comités d'études dans la préparation des normes, conformément aux principes établis dans le Guide 108 de l'IEC.

Une des responsabilités d'un comité d'études est, partout où cela est possible, de se servir des normes horizontales lors de la préparation de ses publications. Le contenu de cette norme horizontale ne s'appliquera pas, à moins qu'il ne soit spécifiquement désigné ou inclus dans les publications concernées.

2 Références normatives

Les documents suivants cités dans le texte 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 60038, *Tensions normales de l'IEC*

IEC 60060-1, *Technique des essais à haute tension – Partie 1: Définitions et exigences générales*

IEC 60071-2, *Coordination de l'isolement – Partie 2: Lignes directrices en matière d'application*

IEC 60099-4, *Parafoudres – Partie 4: Parafoudres à oxyde métallique sans éclateur pour réseaux à courant alternatif*