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COMMENTED VERSION

INTERNATIONAL STANDARD



**High-voltage switchgear and controlgear –
Part 214: Internal arc classification for AC metal-enclosed pole-mounted
switchgear and controlgear for rated voltages above 1 kV and up to and
including 52 kV**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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CONTENTS

FOREWORD	4
INTRODUCTION	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	8
3.1 General terms and definitions	8
3.8 Index of definitions	10
4 Normal and special service conditions	11
5 Ratings	11
5.1 General	11
5.2 Rated voltage (U_r)	11
5.2.1 General	11
5.3 Rated insulation level (U_d , U_p , U_s)	12
5.4 Rated frequency (f_r)	12
5.101 Ratings of the internal arc classification (IAC)	12
5.101.1 General	12
5.101.2 Rated approach distance (D_{AP})	12
5.101.3 Rated arc fault currents (I_A , I_{Ae})	12
5.101.4 Rated arc fault duration (t_A , t_{Ae})	12
6 Design and construction	13
6.11 Nameplate	13
6.11.2 Application	13
6.101 Internal arc fault	13
6.102 Enclosure	14
7 Type tests	15
7.1 General	15
7.1.1 Basics	15
7.1.2 Information for identification of test object	16
7.1.3 Information to be included in type-test reports	16
7.101 Internal arc type test	17
7.101.1 General	17
7.101.2 Test conditions	17
7.101.3 Arrangement of the equipment	18
7.101.4 Indicators (for assessing the thermal effects of the gases)	21
7.101.5 Arrangement of indicators	21
7.101.6 Test parameters	22
7.101.7 Test procedure	23
7.101.8 Criteria to pass the test	29
7.101.9 Transferability of the test results	30
8 Routine tests	30
9 Guide to the selection of switchgear and controlgear (informative)	30
9.1 General	30
9.101 Internal arc fault	30
9.101.1 General	30
9.101.2 Causes and preventive measures	31

9.101.3	Supplementary protective measures.....	32
9.101.4	Considerations for the selection and installation	32
9.101.5	Internal arc test	32
9.101.6	IAC designation.....	33
10	Information to be given with enquiries, tenders and orders (informative)	33
10.1	General.....	33
11	Transport, storage, installation, operation instruction and maintenance.....	34
11.1	General.....	34
11.2	Conditions during transport, storage and installation	34
11.3	Installation	34
11.3.1	General.....	34
11.101	Maintenance.....	34
12	Safety.....	34
12.1	General.....	34
13	Influence of the product on the environment.....	34
Annex A	(normative) Identification of the test objects	36
A.1	General.....	36
A.2	Data.....	36
A.3	Drawings.....	36
Bibliography		37
List of comments		39
Figure 1	– Examples of enclosures and compartment(s) in different arrangements	15
Figure 2	– Test arrangement for pole-mounted switchgear and controlgear	20
Figure 3	– Horizontal indicator.....	21
Figure 4	– Flow-chart for the choice of arc initiation depending on the construction	27
Table 1	– Nameplate information	13
Table 2	– Parameters for internal arc fault test according to enclosure and compartment construction	25
Table 3	– Locations, causes and examples of measures to decrease the probability of internal arc faults	31
Table 4	– Single-phase-to-earth arc fault current depending on the network neutral earthing	33

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 214: Internal arc classification for AC metal-enclosed pole-mounted switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV

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 commented version (CMV) of the official standard IEC 62271-214:2024 edition 2.0 allows the user to identify the changes made to the previous IEC 62271-214:2019 edition 1.0. Furthermore, comments from IEC TC SC 17C experts are provided to explain the reasons of the most relevant changes, or to clarify any part of the content.

A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text. Experts' comments are identified by a blue-background number. Mouse over a number to display a pop-up note with the comment.

This publication contains the CMV and the official standard. The full list of comments is available at the end of the CMV.

IEC 62271-214 has been prepared by subcommittee 17C: Assemblies, of IEC technical committee 17: High voltage switchgear and controlgear. It is an International Standard.

This second edition cancels and replaces the first edition published in 2019. This edition constitutes a technical revision.

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

- a) indicators positioning update;
- b) neutral earthing connection of the test circuit for three-phase tests;
- c) general review for consistency with IEC 62271-200, Ed.3.0:2021.

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

Draft	Report on voting
17C/924/FDIS	17C/931/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.

This standard shall be read in conjunction with IEC 62271-1, second edition, published in 2017, to which it refers, and which is applicable unless otherwise specified in this standard. In order to simplify the indication of corresponding requirements, the same numbering of clauses and subclauses is used as in IEC 62271-1. Amendments to these clauses and subclauses are given under the same references whilst additional subclauses are numbered from 101. Any clause with the term "Not applicable" relates to the clause not being relevant to IEC 62271-214, and does not infer the clause is or is not relevant for its applicable switchgear standard.

A list of all parts of the IEC 62271 series, published under the general title *High-voltage switchgear and controlgear*, 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

- reconfirmed,
- withdrawn, or
- revised.

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INTRODUCTION

IEC 62271-214 has been developed due to the requirement to remove IAC Type C designated pole-mounted switchgear from IEC 62271-200. ~~Only enclosed terminal equipment is to be considered within IEC 62271-200. For this reason,~~ IEC 62271-214 is to be considered independent of IEC 62271-200, however it is still related to other product standards of the IEC 62271 series.

Only open terminal pole-mounted switchgear and controlgear has been considered within this document.

This equipment relates to operation in three-phase, two-phase and single-phase systems.

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 214: Internal arc classification for

AC 1 metal-enclosed pole-mounted switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV

1 Scope

This part of IEC 62271 specifies requirements for internal arc classification of AC metal-enclosed pole-mounted switchgear ~~installations used for alternating current~~ and controlgear with rated voltages above 1 kV and up to and including 52 kV with service frequencies up to and including 60 Hz.

This document is applicable to three-phase, two-phase and single-phase open terminal equipment for which an internal arc classification is assigned **2**. Enclosures may include fixed and removable components and may be filled with fluid (liquid or gas) to provide insulation.

NOTE 1 The IAC classification takes into account the installation disposition of the high-voltage switchgear and controlgear and worker's operating area. **3**

NOTE 2 For the use of this document, high-voltage (IEC 60050-601:1985, 601-01-27) is the rated voltage above 1 000 V. However, medium voltage (IEC 60050-601:1985, 601-01-28) is commonly used for distribution systems with voltages above 1 kV and generally applied up to and including 52 kV; refer to [1]¹.

This document does not preclude that other equipment may be included in the same enclosure. In such a case, any possible influence of that equipment on the switchgear and controlgear is to be taken into account.

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 60050-151:2001, *International Electrotechnical Vocabulary (IEV) – Part 151: Electrical and magnetic devices*

IEC 60050-151:2001/AMD1:2013

IEC 60050-151:2001/AMD2:2014

IEC 60050-151:2001/AMD3:2019

IEC 60050-151:2001/AMD4:2020

IEC 60050-151:2001/AMD5:2021

IEC 60050-441:1984, *International Electrotechnical Vocabulary (IEV) – Part 441: Switchgear, controlgear and fuses*

IEC 60050-441:1984/AMD1:2000

IEC 62271-1:2017, *High-voltage switchgear and controlgear – Part 1: Common specifications for alternating current switchgear and controlgear*

IEC 62271-1:2017/AMD1:2021

¹ Numbers in square brackets refer to the Bibliography.

IEC 62271-200:2021, *High-voltage switchgear and controlgear – Part 200: AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV*

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**High-voltage switchgear and controlgear –
Part 214: Internal arc classification for AC metal-enclosed pole-mounted
switchgear and controlgear for rated voltages above 1 kV and up to and
including 52 kV**

**Appareillage à haute tension –
Partie 214 : Classification arc interne des appareillages sous enveloppe
métallique à courant alternatif de tensions assignées supérieures à 1 kV et
inférieures ou égales à 52 kV montées sur poteau**

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms and definitions	8
3.1 General terms and definitions	8
3.8 Index of definitions.....	10
4 Normal and special service conditions	11
5 Ratings.....	11
5.1 General.....	11
5.2 Rated voltage (U_r)	11
5.2.1 General	11
5.3 Rated insulation level (U_d , U_p , U_s)	11
5.4 Rated frequency (f_r).....	12
5.101 Ratings of the internal arc classification (IAC).....	12
5.101.1 General	12
5.101.2 Rated approach distance (D_{AP}).....	12
5.101.3 Rated arc fault currents (I_A , I_{Ae}).....	12
5.101.4 Rated arc fault duration (t_A , t_{Ae})	12
6 Design and construction	12
6.11 Nameplate	12
6.11.2 Application.....	12
6.101 Internal arc fault.....	13
6.102 Enclosure	13
7 Type tests	14
7.1 General.....	14
7.1.1 Basics	14
7.1.2 Information for identification of test object	15
7.1.3 Information to be included in type-test reports	15
7.101 Internal arc type test.....	16
7.101.1 General	16
7.101.2 Test conditions	16
7.101.3 Arrangement of the equipment.....	17
7.101.4 Indicators (for assessing the thermal effects of the gases).....	19
7.101.5 Arrangement of indicators.....	19
7.101.6 Test parameters	20
7.101.7 Test procedure	21
7.101.8 Criteria to pass the test	26
7.101.9 Transferability of the test results.....	26
8 Routine tests	27
9 Guide to the selection of switchgear and controlgear (informative)	27
9.1 General.....	27
9.101 Internal arc fault.....	27
9.101.1 General	27
9.101.2 Causes and preventive measures	28

9.101.3	Supplementary protective measures	28
9.101.4	Considerations for the selection and installation	29
9.101.5	Internal arc test	29
9.101.6	IAC designation	29
10	Information to be given with enquiries, tenders and orders (informative)	30
10.1	General.....	30
11	Transport, storage, installation, operation instruction and maintenance	30
11.1	General.....	30
11.2	Conditions during transport, storage and installation	31
11.3	Installation	31
11.3.1	General	31
11.101	Maintenance	31
12	Safety.....	31
12.1	General.....	31
13	Influence of the product on the environment	31
Annex A	(normative) Identification of the test objects	32
A.1	General.....	32
A.2	Data.....	32
A.3	Drawings.....	32
Bibliography		33
Figure 1	– Examples of enclosures and compartment(s) in different arrangements	14
Figure 2	– Test arrangement for pole-mounted switchgear and controlgear.....	18
Figure 3	– Horizontal indicator	19
Figure 4	– Flow-chart for the choice of arc initiation depending on the construction	24
Table 1	– Nameplate information	13
Table 2	– Parameters for internal arc fault test according to enclosure and compartment construction.....	23
Table 3	– Locations, causes and examples of measures to decrease the probability of internal arc faults	28
Table 4	– Single-phase-to-earth arc fault current depending on the network neutral earthing	30

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HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 214: Internal arc classification for AC metal-enclosed pole-mounted switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV

1 Scope

This part of IEC 62271 specifies requirements for internal arc classification of AC metal-enclosed pole-mounted switchgear and controlgear with rated voltages above 1 kV and up to and including 52 kV with service frequencies up to and including 60 Hz.

This document is applicable to three-phase, two-phase and single-phase open terminal equipment for which an internal arc classification is assigned. Enclosures may include fixed and removable components and may be filled with fluid (liquid or gas) to provide insulation.

NOTE 1 The IAC classification takes into account the installation disposition of the high-voltage switchgear and controlgear and worker's operating area.

NOTE 2 For the use of this document, high-voltage (IEC 60050-601:1985, 601-01-27) is the rated voltage above 1 000 V. However, medium voltage (IEC 60050-601:1985, 601-01-28) is commonly used for distribution systems with voltages above 1 kV and generally applied up to and including 52 kV; refer to [1]¹.

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SOMMAIRE

AVANT-PROPOS	36
INTRODUCTION.....	38
1 Domaine d'application	39
2 Références normatives	39
3 Termes et définitions	40
3.1 Termes et définitions généraux	40
3.8 Index des définitions	42
4 Conditions de service normales et spéciales	43
5 Caractéristiques assignées.....	43
5.1 Généralités	43
5.2 Tension assignée (U_r).....	43
5.2.1 Généralités	43
5.3 Niveau d'isolement assigné (U_d , U_p , U_s)	43
5.4 Fréquence assignée (f_r)	43
5.101 Caractéristiques assignées de la classification arc interne (IAC).....	44
5.101.1 Généralités	44
5.101.2 Distance d'approche assignée (D_{AP}).....	44
5.101.3 Courants de défaut d'arc assignés (I_A , I_{Ae}).....	44
5.101.4 Durée de défaut d'arc assignée (t_A , t_{Ae})	44
6 Conception et construction	44
6.11 Plaque signalétique	45
6.11.2 Application.....	45
6.101 Défaut d'arc interne	45
6.102 Enveloppe.....	45
7 Essais de type	46
7.1 Généralités	47
7.1.1 Principes fondamentaux	47
7.1.2 Informations pour l'identification de l'objet d'essai	47
7.1.3 Informations à inclure dans les rapports d'essais de type	47
7.101 Essai de type d'arc interne.....	48
7.101.1 Généralités	48
7.101.2 Conditions d'essai	48
7.101.3 Disposition de l'équipement	49
7.101.4 Indicateurs (pour l'évaluation des effets thermiques des gaz)	51
7.101.5 Disposition des indicateurs	51
7.101.6 Paramètres d'essai	52
7.101.7 Procédure d'essai	53
7.101.8 Conditions de réussite des essais.....	58
7.101.9 Transférabilité des résultats d'essai.....	59
8 Essais individuels de série	59
9 Guide pour le choix de l'appareillage (informatif)	59
9.1 Généralités	59
9.101 Défaut d'arc interne	59
9.101.1 Généralités	59
9.101.2 Causes et mesures préventives	60

9.101.3	Mesures de protection supplémentaires	61
9.101.4	Considérations relatives au choix et à l'installation	61
9.101.5	Essai d'arc interne	61
9.101.6	Désignation IAC.....	62
10	Renseignements à donner dans les appels d'offres, les soumissions et les commandes (informatif)	62
10.1	Généralités	62
11	Transport, stockage, installation, instructions de fonctionnement et maintenance	63
11.1	Généralités	63
11.2	Conditions à respecter pendant le transport, le stockage et l'installation	63
11.3	Installation	63
11.3.1	Généralités	63
11.101	Maintenance	63
12	Sécurité.....	63
12.1	Généralités	63
13	Influence du produit sur l'environnement	63
Annexe A (normative)	Identification des objets d'essai.....	65
A.1	Généralités	65
A.2	Données	65
A.3	Plans	66
Bibliographie		67
Figure 1	– Exemples d'enveloppes et de compartiments dans différentes dispositions	46
Figure 2	– Disposition d'essai des appareillages montés sur poteau	50
Figure 3	– Indicateur horizontal.....	51
Figure 4	– Organigramme pour le choix d'amorçage d'arc selon la construction	56
Tableau 1	– Informations sur la plaque signalétique.....	45
Tableau 2	– Paramètres d'essai de défaut interne selon l'enveloppe et la construction du compartiment	55
Tableau 3	– Emplacements, causes et exemples de mesures qui permettent de réduire la probabilité d'occurrence d'un défaut d'arc interne.....	60
Tableau 4	– Courant de défaut d'arc phase-terre monophasé selon la mise à la terre du neutre du réseau.....	62

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

APPAREILLAGE À HAUTE TENSION –

Partie 214: Classification arc interne des appareillages sous enveloppe métallique à courant alternatif de tensions assignées supérieures à 1 kV et inférieures ou égales à 52 kV montés sur poteau

AVANT-PROPOS

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L'IEC 62271-214 a été établie par le sous-comité 17C: Ensembles, du comité d'études 17 de l'IEC: Appareillage haute tension. Il s'agit d'une Norme internationale.

Cette deuxième édition annule et remplace la première édition parue en 2019. Cette édition constitue une révision technique.

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

- a) mise à jour du positionnement des indicateurs;
- b) connexion de mise à la terre du neutre du circuit d'essai pour les essais triphasés;
- c) révision générale à des fins de cohérence avec l'IEC 62271-200 Éd.3.0:2021.

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

Projet	Rapport de vote
17C/924/FDIS	17C/931/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 cette 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/publications.

Cette norme doit être lue conjointement avec l'IEC 62271-1, deuxième édition, parue en 2017, à laquelle elle fait référence et qui s'applique sauf spécification contraire dans la présente norme. Afin de simplifier l'indication des exigences correspondantes, la numérotation des articles et paragraphes reprend celle de l'IEC 62271-1. Les amendements de ces articles et paragraphes sont indiqués sous les mêmes références, tandis que les paragraphes supplémentaires sont numérotés à partir de 101. Tout article qui comprend le terme "Non applicable" indique que l'article ne s'applique pas à l'IEC 62271-214, mais ne présume pas que l'article s'applique ou non à la norme d'appareillage applicable.

Une liste de toutes les parties de la série IEC 62271, publiées sous le titre général *Appareillage à haute tension*, 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.

INTRODUCTION

L'IEC 62271-214 a été établie à la suite de la demande de supprimer de l'IEC 62271-200 les appareillages montés sur poteau classifiés arc interne (IAC) selon le Type C. L'IEC 62271-214 doit être considérée comme indépendante de l'IEC 62271-200. Toutefois elle reste reliée aux autres normes de produits de la série IEC 62271.

Seuls les appareillages à bornes ouvertes montés sur poteau sont pris en compte dans le présent document.

Ces équipements se rapportent aux systèmes triphasés, biphasés et monophasés.

APPAREILLAGE À HAUTE TENSION –

Partie 214: Classification arc interne des appareillages sous enveloppe métallique à courant alternatif de tensions assignées supérieures à 1 kV et inférieures ou égales à 52 kV montés sur poteau

1 Domaine d'application

La présente partie de l'IEC 62271 spécifie les exigences relatives à la classification arc interne des appareillages sous enveloppe métallique à courant alternatif montés sur poteau, de tensions assignées supérieures à 1 kV et inférieures ou égales à 52 kV, et de fréquences de service inférieures ou égales à 60 Hz.

Le présent document s'applique aux équipements à bornes ouvertes triphasés, biphasés et monophasés auxquels une classification arc interne est attribuée. Les enveloppes peuvent comprendre des composants fixes et amovibles et peuvent être remplies de fluide (liquide ou gaz) pour l'isolation.

NOTE 1 La classification IAC tient compte de la disposition de l'installation des appareillages à haute tension et de la zone opérationnelle du travailleur.

NOTE 2 Pour l'utilisation du présent document, la haute tension (IEC 60050-601:1985, 601-01-27) est la tension assignée supérieure à 1 000 V. Cependant, la moyenne tension (IEC 60050-601:1985, 601-01-28) est communément utilisée pour les réseaux de distribution avec des tensions supérieures à 1 kV et est généralement appliquée pour des tensions inférieures ou égales à 52 kV; se reporter à [1]¹.

Le présent document n'exclut pas que d'autres équipements puissent être inclus dans la même enveloppe. Dans ce cas, toute influence possible dudit équipement sur l'appareillage doit être prise en compte.

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 60050-151:2001, *Vocabulaire Électrotechnique International (IEV) – Partie 151: Dispositifs électriques et magnétiques*

IEC 60050-151:2001/AMD1:2013

IEC 60050-151:2001/AMD2:2014

IEC 60050-151:2001/AMD3:2019

IEC 60050-151:2001/AMD4:2020

IEC 60050-151:2001/AMD5:2021

IEC 60050-441:1984, *Vocabulaire Électrotechnique International (IEV) – Partie 441: Appareillage et fusibles*

IEC 60050-441:1984/AMD1:2000

¹ Les chiffres entre crochets renvoient à la Bibliographie.

IEC 62271-1:2017, *Appareillage à haute tension – Partie 1: Spécifications communes pour appareillage à courant alternatif*
IEC 62271-1:2017/AMD1:2021

IEC 62271-200:2021, *Appareillage à haute tension – Partie 200: Appareillage sous enveloppe métallique pour courant alternatif de tensions assignées supérieures à 1 kV et inférieures ou égales à 52 kV*