

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**High-voltage switchgear and controlgear –  
Part 204: Rigid gas-insulated transmission lines for rated voltage above 52 kV**

**Appareillage à haute tension –  
Partie 204: Lignes de transport rigides à isolation gazeuse de tension assignée  
supérieure à 52 kV**



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –****Part 204: Rigid gas-insulated transmission lines  
for rated voltage above 52 kV**

## FOREWORD

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IEC 62271-204 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 2011. This edition constitutes a technical revision.

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

- a) update to be in line with IEC 62271-1:2017 and alignment of the voltage ratings and the test voltages.
- b) addition of new information for welds on pressurized parts and gas tightness.

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

Draft	Report on voting
17C/840/FDIS	17C/846/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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

This document is to be read in conjunction with IEC 62271-1:2017 and IEC 62271-203:2022, to which it refers and which are applicable unless otherwise specified. In order to simplify the indication of corresponding requirements, the same numbering of clauses and subclauses is used as in IEC 62271-1:2017 and IEC 62271-203:2022. Amendments to these clauses and subclauses are given under the same numbering, whilst additional subclauses are numbered from 101.

A list of all parts of the IEC 62271 series can be found, under the general title *High-voltage switchgear and controlgear*, 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](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
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- replaced by a revised edition, or
- amended.

## HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

### Part 204: Rigid gas-insulated transmission lines for rated voltage above 52 kV

#### 1 Scope

This part of IEC 62271 applies to rigid HV gas-insulated transmission lines (GIL) in which the insulation is obtained, at least partly, by an insulating gas or gas mixture other than air at atmospheric pressure, for alternating current of rated voltages above 52 kV, and for service frequencies up to and including 60 Hz.

This document is applicable where the provisions of IEC 62271-203 do not cover the application of GIL (see Note 3).

At each end of the HV gas-insulated transmission line, a specific element is used for the connection between the HV gas-insulated transmission line and other equipment like bushings, power transformers or reactors, cable boxes, metal-enclosed surge arresters, voltage transformers or GIS, covered by their own specification.

Unless otherwise specified, the HV gas-insulated transmission line is designed to be used under normal service conditions.

NOTE 1 In this document, the term "HV gas-insulated transmission line" is abbreviated to "GIL".

NOTE 2 In this document, the word "gas" means gas or gas mixture, as defined by the manufacturer.

NOTE 3 Examples of GIL applications:

- where all or part of the HV gas-insulated transmission line is directly buried;
- where the HV gas-insulated transmission line is located, wholly or partly, in an area accessible to public;
- where the HV gas-insulated transmission line is long (typically longer than 500 m) and the typical gas compartment length exceeds the common practice of GIS technology.

#### 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 60060-1:2010, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60068-1:2013, *Environmental testing – Part 1: General and guidance*

IEC 60229:2007, *Electric cables – Tests on extruded oversheaths with a special protective function*

IEC 60287-3-1:2017, *Electric cables – Calculation of the current rating – Part 3-1: Operating conditions – Site reference conditions*

IEC 60376, *Specification of technical grade sulfur hexafluoride (SF<sub>6</sub>) and complementary gases to be used in its mixtures for use in electrical equipment*