

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**High-voltage switchgear and controlgear –
Part 202: AC prefabricated substations for rated voltages above 1 kV and up to
and including 52 kV**

**Appareillage à haute tension –
Partie 202: Postes préfabriqués pour courant alternatif de tensions assignées
supérieures à 1 kV et inférieures ou égales à 52 kV**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 202: AC prefabricated substations for rated voltages above 1 kV and up to and including 52 kV

FOREWORD

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This third edition cancels and replaces the second edition published in 2014. This edition constitutes a technical revision.

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

- a) the whole document contents and structure are reviewed with due consideration of IEC 62271-1:2017;
- b) modification of the title and scope to include high-voltage switchgear prefabricated substations;
- c) inclusion of CEADS as a possible component of MV/LV prefabricated substation;
- d) in 7.2.101, the possible influence of surrounding elements on the dielectric performance of high-voltage components as high-voltage switchgear and controlgear and high-voltage interconnections non-metal-enclosed or without earthed screen are now considered;

- e) new informative Annex G with testing procedure to evaluate the impact of solar radiation in temperatures inside the enclosure and how to apply it;
- f) new informative Annex H for appropriate consideration of installation conditions of electronic equipment;
- g) the rated power of a prefabricated substation is now defined as a three-parameter rated value. See 5.101.1;
- h) minimum dimensions for access doors to the prefabricated substation in 6.104.4 and for free height of operation aisle in 6.105.3 have been introduced;
- i) continuous current (temperature rise) test methods have been revised/clarified where necessary;
- j) Figure D.1, which shows the mineral-oil-immersed power transformer load factor inside the enclosure, has been corrected.

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

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Full information on the voting for its approval can be found in the report on voting indicated in the above table.

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This document is to be read in conjunction with IEC 62271-1:2017, to which it refers and which is 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. 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.

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INTRODUCTION

A prefabricated substation is defined as a high-voltage type-tested assembly comprising an enclosure containing at least a power transformer and/or a high-voltage switchgear and controlgear, and, in general, all or some of the following main components: low-voltage switchgear and controlgear, electrical high-voltage interconnection and low-voltage interconnection. The prefabricated substation can include all necessary auxiliary and control equipment for its operation. The purpose being to supply low-voltage power from a high-voltage system and/or vice versa (high-voltage/low-voltage transformer substation) or distribute electric power in a high-voltage network (high-voltage switchgear substation).

These prefabricated substations can be in locations accessible to the public and should ensure protection not only to authorized persons but also to general public under the specified service conditions.

Therefore, in addition to the specified characteristics, ratings and relevant test procedures, particular attention has been paid to the specification concerning the protection of persons, both operators and general public. Use of type-tested components and suitable design and construction of the assembly contributes to this protection. The correct design and performance of the prefabricated substation is verified by means of relevant type and routine tests described in this document, including internal arc tests (if applicable).