SOUTH AFRICAN NATIONAL STANDARD

Miniature substations for rated a.c. voltages up to and including 24 kV

WARNING
This document references other documents normatively.
Table of changes

<table>
<thead>
<tr>
<th>Change No.</th>
<th>Date</th>
<th>Scope</th>
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<tr>
<td>Amdt 1</td>
<td>2016</td>
<td>Amended to change the designation “SANS 1029/NRS 004” to read “SANS 1029”, to modify the introduction, to update referenced standards, to delete the footnote in the note on plinths, and to delete a note on gaskets.</td>
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Foreword

This South African standard was approved by National Committee SABS/TC 067/SC 05, Electricity distribution systems and components – Electricity distribution, in accordance with procedures of the SABS Standards Division, in compliance with annex 3 of the WTO/TBT agreement.

This document was approved for publication in November 2016.

This document supersedes SANS 1029:2010 (edition 3).

A vertical line in the margin shows where the text has been technically modified by amendment No. 1.

Annex C forms an integral part of this document. Annexes A and B are for information only.

Compliance with this document cannot confer immunity from legal obligations.
Introduction

The mini-substation has become a permanent feature of electrical engineering: in particular it is a means of assembling and testing, in a factory, a significant part of a reticulation system. It represents a considerable saving in site labour, saving of space in residential areas and on sidewalks and hence a reduction in costs.

The correct application of a mini-substation requires an appropriate design of a reticulation system. In particular, attention should be paid to fault-current interruption, which should be provided for by the appropriately rated fault interrupting switchgear in the mini-substation or elsewhere in the system.

This specification has been prepared to establish and promote uniform requirements and preferred sizes for mini-substations in accordance with SANS 62271-202 for applications with nominal system voltages from 3,3 kV up to and including 22 kV and power ratings not exceeding 1 000 kVA. The purpose of this specification is to enable purchasers to acquire the specified equipment without the need for detailed and extensive contract documents.

NOTE   The mini-substation might not include MV switchgear.

Any differences between the requirements of this specification and the purchaser's requirements should, as far as possible, be clearly indicated in technical schedules which may be compiled using the draft schedules set out in annexes A and B and which should, where appropriate, be submitted for consideration in future revisions of this specification.
Contents

Introduction

1 Scope ............................................................................................................................. 3

2 Normative references .................................................................................................... 3

3 Terms, definitions and abbreviations ............................................................................ 5

4 Requirements ................................................................................................................. 7
   4.1 Ratings ................................................................................................................. 7
   4.2 Design and construction requirements ............................................................... 8
   4.3 Materials .............................................................................................................. 12
   4.4 Compartments ..................................................................................................... 12
   4.5 Transformer ......................................................................................................... 13
   4.6 Protection against corrosion ................................................................................ 14

5 Not used ......................................................................................................................... 15

6 Electrical requirements .................................................................................................. 15
   6.1 Earthing ............................................................................................................... 15
   6.2 MV compartment ................................................................................................ 16
   6.3 LV compartment ................................................................................................. 18
   6.4 Transformer ........................................................................................................ 24

7 Tests ............................................................................................................................. 24
   7.1 Component tests ................................................................................................ 24
   7.2 Clearances .......................................................................................................... 24
   7.3 Type tests ........................................................................................................... 25
   7.4 Routine tests ....................................................................................................... 25
   7.5 Tests on painted surfaces .................................................................................. 26
   7.6 Tests on glass-reinforced polyester products .................................................... 26

8 Marking, labelling and documentation ........................................................................... 27
   8.1 General ............................................................................................................... 27
   8.2 Nameplates ......................................................................................................... 27
   8.3 Safety notices and warning signs ...................................................................... 27
   8.4 Labels ................................................................................................................. 28
   8.5 Other notices ...................................................................................................... 29
   8.6 Documentation ................................................................................................... 29

9 Packaging, transport and delivery .................................................................................. 31

Annex A (informative) Guide to purchasers on preparing an enquiry ............................. 32

Annex B (informative) Model form for schedules A and B ............................................ 34

Annex C (normative) Drawings ......................................................................................... 37

Bibliography ...................................................................................................................... 47
Miniature substations for rated a.c. voltages up to and including 24 kV

1 Scope

This specification covers the construction, quality, technical and safety requirements for non-walk-in ground-level mounted three-phase medium-voltage and low-voltage pre-fabricated miniature substations suitable for use in areas accessible to the public, for power ratings up to 1 000 kVA and on systems with a nominal voltage up to 22 kV.

NOTE 1 A guide to purchasers on preparing an enquiry is given in annex A.

NOTE 2 A model form for schedules A and B is given in annex B.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this specification. All documents are subject to revision and, since any reference to a document is deemed to be a reference to the latest edition of that document, parties to agreements based on this specification are encouraged to take steps to ensure the use of the most recent editions of the documents listed below. Information on currently valid national and international standards can be obtained from the SABS Standards Division.

EN 50180-1, Bushings above 1 kV up to 52 kV and from 250 A to 3,15 kA for liquid for liquid filled transformers – Part 1: General requirements for bushings. 

NRS 000-1, NRS definitions – Part 1: Compilation of NRS and other definitions used in the Electricity Supply Industry.

SANS 121/ISO 1461, Hot dip galvanized coatings on fabricated iron and steel articles – Specifications and test methods.

SANS 141, Glass-reinforced polyester (GRP) laminates.


SANS 419, E glass fibre chopped strand mat for reinforcement of polyester and other liquid laminating systems.

SANS 556-1, Low-voltage switchgear – Part 1: Circuit-breakers.

SANS 556-2-1, Low-voltage switchgear – Part 2-1: Earth leakage circuit-breakers.


SANS 780:2009, Distribution transformers.