

SPECIFICATION FOR LOW VOLTAGE DISTRIBUTION BOARDS

This specification covers Transnet Projects requirements for low voltage distribution boards (250A)

SCOPE

This specification covers Transnet Projects requirements regarding the design, supply, manufacture, population, works testing, delivery to site, site erection, site testing and commissioning of low voltage Distribution Switchboards consisting of lightning surge arrestors circuit breakers, moulded case circuit breakers and auxiliary equipment. The tenderer is required to familiarise themselves with all applicable Standards and Codes of Practice listed herein, and to ensure compliance in the execution of any work in terms of this document

REFERENCES:

Standard and code of practice

SANS 064 - The preparation of steel surfaces for coating

SANS 10111 - Engineering Drawings.

SANS 10142 - Wiring of premises Part 1: Low voltage installations

SANS 10313 - Protection against lightning - Physical damage to structures and life hazard

SANS 156 - Moulded-case circuit breakers

SANS 60269 - Low-voltage fuses

SANS 1091 - National colour standards for paint

SANS 1195 - Busbars

SANS 1274 - Coating applied by the powder coating process

SANS 1973-1 Low-voltage switchgear and control gear assemblies Part 1: Type-tested assemblies with stated deviations and a rated short-circuit withstand strength above 10 kA

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SANS 1973-3 - Low-voltage switchgear and control gear assemblies Part 3: Safety of assemblies with a rated prospective short-circuit current of up to and including 10 kA

SANS 60529 - Degrees of protection provided by enclosures (IP Code)

SANS 1507 - Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1 900/3 300 V)

SABS ISO 9000 Quality management systems -- Fundamentals and vocabulary

SANS 1019 Standard voltages, currents and insulation levels for electricity supply

SANS 170 Fasteners

DISTRIBUTION BOARD SPECIFICATION:

The distribution board shall comply with SANS 60439-1

DISTRIBUTION BOARD SPECIFICATION	
SPARE WAYS	30%
DISTRIBUTION BOARD TYPE	SURFACE MOUNT
MATERIAL	ZINTEX
THICKNESS OF THE MATERIAL	2mm
PAINT TYPE	POWDER COATED(40 MICRONS)
FRAME COLOUR	WHITE
IP RATING	65
SWITCHGEAR MAKE	CBI
FORM TYPE	2B TYPE 1

The 250A,25kA, 3-phase surface mount Distribution board, should be fitted with the following switchgears:

DISTRIBUTION BOARD SWITCHGEARS	
TYPE/RATING	NUMBER
Main Breaker, 250A,25kA, 3-Pole	1
Surge arrestor, 480V,40kA,3-POLE	1
Earth leakage,63A,25kA,3-POLE	2
Circuit Breaker, 63A,25kA,3-POLE	5
Circuit Breaker, 60A,25kA,3-POLE	2
Circuit Breaker, 32A,25kA,3-POLE	4
Circuit Breaker, 40A,10kA,1-POLE	1
Circuit Breaker, 30A,6kA,1-POLE	3

Circuit Breaker, 20A,6kA,1-POLE	9
Circuit Breaker, 15A,6kA,1-POLE	9
Circuit Breaker, 10A,3kA,1-POLE	3

LABELLING:

- Labels shall be provided comprising conspicuous engraved black lettering on white background secured with rivets or screws on or adjacent to the items concerned, and worded in English.
- Labels of embossed tape or labels secured with adhesive are not acceptable
- All switches, circuit breakers, isolators, contactors, relays, etc., shall be clearly designated.
- The terminals of all outgoing circuits shall be provided with labels to correspond with the labelling of the units on the panel of the distribution board.
- All terminal connections shall be provided with durable tags or clips, on which shall be clearly and indelibly marked, the identifying code letters of each wire. Such code letters shall correspond to those used on the wiring diagram

Each distribution board shall be fitted with the following labels as needed in suitable positions:

- Live busbars
- Flash signs
- Main label (always required)
- Voltage rating
- Current rating
- Fault level and time
- IP rating
- Job number
- Reference number
- Date of manufacture
- Form of separation
- Fed from
- Each feeder/starter to be labelled

EARTHING:

The components shall be effectively bonded to the main frame of the distribution board, which shall also be bonded to the main earth bar. Earthing shall comply with SANS-10142 code of practice for the wiring of premises.

INSPECTION AND TESTING:

- Transnet Projects reserves the right to carry out inspection and tests of any items of equipment and work at any time during the manufacture at manufacturer's works and to be present at any tests
- A final inspection by Transnet Projects before delivery to site is required
- All prescribed tests as referred to in the standard specifications may be called for at the discretion of Transnet Projects.

GUARANTEE:

- The Contractor shall undertake to repair all faults due to bad workmanship and / or faulty materials and to replace all defective apparatus or materials during a period of twelve (12) calendar months, calculated from the date of delivery.
- Any defects that may become apparent during the guarantee period shall be rectified to the satisfaction of, and free of cost.
- The Contractor shall undertake work on the rectification of any defects that may arise during the guarantee period within 7 days of his being notified by Transnet Projects of such defects.
- Should the Contractor fail to comply with the requirements stipulated above, Transnet Projects will be entitled to undertake the necessary repair work or effect replacement of defective apparatus or materials, and the Contractor shall reimburse Transnet Projects the total cost of such repair or replacements, including the labour costs incurred in replacing defective material.