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METAL-ENCLOSED SWITCHGEAR FOR RATED VOLTAGES OF 72.5 kV AND ABOVE



STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter



THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL organizations were officially represented on the committee entrusted with the preparation of this standard:

Australian British Trade Association
Australian Electrical and Electronic Manufacturers Association
Confederation of Australian Industry
Electricity Supply Association of Australia
Railways of Australia Committee
Testing Authorities
The Institution of Engineers, Australia

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AUSTRALIAN STANDARD

**METAL-ENCLOSED
SWITCHGEAR
FOR RATED VOLTAGES
OF 72.5 kV AND ABOVE**

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P R E F A C E

This standard was prepared by the Association's Committee on Power Switchgear. During its preparation, consideration was given to IEC 517, High-voltage Metal-enclosed Switchgear for Rated Voltages of 72.5 kV and Above, including Amendment No 1, April 1977, and acknowledgement is made of the assistance received therefrom.

The standard generally follows IEC 517 in technical content, but where it deviates technically by way of additional or different requirements, this is indicated by a ruled line in the margin against the clause, or part thereof, affected.

The standard follows the sequence of clauses in IEC 517, but the clauses have been re-numbered in accordance with SAA Code. Appendix C lists the IEC clause and table numbers alongside those given in this standard for reference purposes.

This standard requires reference to the standards listed below. Where an Australian standard, which is based on an IEC standard is listed, the equivalent IEC number is shown in parenthesis:

- AS 1018 Recommendations for Partial Discharge Measurements (IEC 270)
- AS 1170 SAA Loading Code, Part 2—Wind Forces
- AS 1217 Methods of Measurement of Airborne Sound Emitted by Machines
- AS 1265 Bushings for Alternating Voltages Above 1000 V (IEC 137)
- AS 1306 High Voltage Isolators (Disconnectors) and Earthing Switches (IEC 99)
- AS 1824 Insulation coordination (IEC 71)
 - Part 1—Basic Principles, Standard Insulation Levels and Test Procedures
 - Part 2—Application Guide
- AS 1831 High Voltage Testing Techniques
 - Part 1—General Definitions, Test Requirements, Test Procedures and Measuring Devices (IEC 60)
- AS 1939 Classification of Degrees of Protection Provided by Enclosures for Electrical Equipment (IEC 529)
- AS 2006 High Voltage Alternating Current Circuit-breakers (IEC 56)
- AS C1 Standard Voltages and Frequency for AC Transmission and Distribution Systems (IEC 38)

- AS C320 Classification of Insulating Materials for Electrical Machinery and Apparatus on the Basis of Thermal Stability in Service
- IEC 141 Tests on Oil-filled and Gas-pressure Cables and Their Accessories
- IEC 376 Specifications and Acceptance of New Sulphur Hexafluoride
- IEC 480 Guide for the Checking of Sulphur Hexafluoride (SF₆) taken from Electrical Equipment.

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CONTENTS

	<i>Page</i>
SECTION 1. SCOPE AND OBJECT	
1.1 Scope	6
1.2 Object	6
SECTION 2. DEFINITIONS	
2.1 Application of Section	7
2.2 General Terms	7
2.3 Enclosure and Parts	7
2.4 Rated Quantities	8
2.5 Main and Auxiliary Circuits	8
SECTION 3. SERVICE CONDITIONS AND CONDITIONS DURING TRANSPORT AND ERECTION	
3.1 Normal Service Conditions	9
3.2 Abnormal Service Conditions	10
3.3 Conditions During Transport, Storage and Erection	10
SECTION 4. RATINGS	
4.1 Rated Values	11
4.2 Rated Voltage	11
4.3 Rated Insulation Level	11
4.4 Rated Frequency	11
4.5 Rated Normal Current	12
4.6 Rated Short-time Withstand Current	12
4.7 Rated Peak Withstand Current	13
4.8 Coordination of Rated Values	13
4.9 Temperature Rise	13
4.10 Degrees of Protection	15
4.11 Rated Supply Voltages, Frequencies and Pressures of Operating Devices and of Auxiliary and Control Circuits	15
SECTION 5. DESIGN AND CONSTRUCTION	
5.1 General	17
5.2 Enclosures and Partitions	17
5.3 Electrical and Pneumatic Supply of Operating Devices and of Auxiliary and Control Circuits	18
5.4 Isolators (Disconnectors)	19
5.5 Earthing and Earthing Switches	19
5.6 Interlocks	20
5.7 Provision for Expansion, Contraction and Misalignment	21
5.8 Noise	21
5.9 Gas Tightness	21
5.10 Tests on Cables	21
SECTION 6. INFORMATION TO BE GIVEN AND NAMEPLATE INFORMATION	
6.1 Information to be Given by the Purchaser	22
6.2 Information to be Given by the Manufacturer	22
6.3 Nameplate Information	22

SECTION 7. TESTS

7.1	General	23
7.2	Classification of Tests	23
7.3	Voltage Tests	25
7.4	Temperature-rise Tests	31
7.5	Short-time Current Tests on Main Circuits	33
7.6	Short-time Current Tests on Earthing Circuits	33
7.7	Verification of Making and Breaking Capacities	33
7.8	Internal Arc Tests	33
7.9	Mechanical Operation Tests	33
7.10	Operation Tests at Limit Temperatures	34
7.11	Verification of the Degrees of Protection	34
7.12	Fluid Leakage Tests	4
7.13	Measurement of Moisture	
7.14	Tests of Auxiliary Electrical, Pneumatic and Hydraulic Devices	35
7.15	Check of Wiring	35

APPENDICES

A	Operation Tests at Limit Temperatures	36
B	Items Subject to Agreement Between the Purchaser and the Manufacturer	37
C	Relationship Between Clauses and Table Reference Numbers in IEC 517 and AS 2263	38

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
METAL-ENCLOSED SWITCHGEAR FOR RATED
VOLTAGES OF 72.5 kV AND ABOVE

SECTION 1. SCOPE AND OBJECT

1.1 SCOPE. This standard applies to metal-enclosed switchgear, the insulation of which is obtained at least partly, by an insulating fluid other than air at atmospheric pressure and designed for alternating current of rated voltages of 72.5 kV and above, it covers both indoor and outdoor installations.

The metal-enclosed switchgear specified in this standard consists of individual elements intended to be directly connected together and able to operate only in this manner.

This standard completes and amends, if necessary, the various relevant standards applying to the individual elements constituting metal-enclosed switchgear.

1.2 OBJECT. The purpose of this standard is to establish provisions concerning classification, construction, ratings and tests of the switchgear.

SECTION 2. DEFINITIONS

2.1 APPLICATION OF SECTION. For the purpose of the standard the definitions in this Section apply.

2.2 GENERAL TERMS.

2.2.1 Switchgear — a general term covering switching devices and their combination with associated control, measuring, protective and regulating equipment, also assemblies of such devices and equipment with associated interconnections, accessories, enclosures, and supporting structures, intended in principle for use in connection with generation, transmission, distribution and conversion of electric power.

2.2.2 Metal-enclosed switchgear — switchgear assemblies with an external metal-enclosure intended to be earthed, and connectable except for external connections.

2.2.3 Factory-assembled switchgear — switchgear units in the factory as transportable assemblies constructed and tested under the responsibility of the manufacturer.

2.2.4 Transportable assembly—an assembly or sub-assembly of metal-enclosed switchgear suitable for shipping, without being dismantled.

2.3 ENCLOSURE AND PARTS.

2.3.1 Enclosure — the surrounding part of the metal-enclosed switchgear used to retain the insulating fluid under the prescribed conditions necessary to maintain safely the insulation level. It prevents personnel from inadvertently approaching live and moving parts contained therein and protects the internal components of the equipment against external effects.

2.3.2 Compartment — a part of metal-enclosed switchgear, totally enclosed except for means necessary for interconnection and control.

NOTE: A compartment may be designated by the main component contained therein, e.g. circuit-breaker compartment, busbar compartment.

2.3.3 Partition — a part of the enclosure of a compartment separating it from another compartment.

2.3.4 Bushing — a structure carrying a conductor through a partition or an enclosure and insulating it therefrom, including the means of attachment to the partition or enclosure.

2.3.5 Fixed connection — two or more conductors fixed together to ensure circuit continuity, e.g. by bolting, screwing or spring-loading, and not normally intended to be opened or closed.