

Australian Standard[®]

**Electrical equipment for coal
mines—Transformer substations
for use underground**

This Australian Standard was prepared by Committee EL/23, Electrical Equipment in Coal Mines. It was approved on behalf of the Council of Standards Australia on 19 February 1990 and published on 4 June 1990.

The following interests are represented on Committee EL/23:

Australian Chamber of Commerce
Australian Coal Association
Australian Electrical and Electronic Manufacturers Association
Confederation of Australian Industry
Department of Industrial Relations and Employment, N.S.W.
Department of Minerals and Energy, N.S.W.
Department of Mines, Qld
Institute of Mining Electrical and Mining Mechanical Engineers
Joint Coal Board
Regulatory authorities (electrical)

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**Electrical equipment for coal
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for use underground**

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PREFACE

This Standard was prepared by the Standards Australia Committee on Electrical Equipment in Coal Mines to supersede AS 1740—1985.

It is intended for the guidance of manufacturers, users, regulatory authorities and associated interests and for use with other Australian Standards and relevant mining regulations.

The purpose of this edition is to update the requirements to take account of new design parameters and current user needs.

The major changes in this edition include—

- (a) requirements for secondary enclosures having voltages up to 11 kV; and
- (b) the addition of short-circuit tests.

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STANDARDS AUSTRALIA

Australian Standard

Electrical equipment for coal mines—Transformer substations for use underground

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE. This Standard specifies the minimum requirements for transformer substations (hereinafter referred to as a substation(s)) for use in non-hazardous areas and hazardous areas and intended primarily for supplying power to machinery below ground in coal mines.

NOTE: Substations may require approval by the relevant Regulatory Authority.

1.2 APPLICATION. Substations intended for use in non-hazardous areas shall comply with Sections 2, 3, 5 and 6.

Substations intended for use in hazardous areas shall comply with Section 2, 4, 5 and 6.

1.3 REFERENCED DOCUMENTS. The following documents are referred to in this Standard:

AS

- 1029 Low voltage contactors
- 1029.1 Part 1: Electromechanical—Up to and including 1000 V a.c. and 1200 V d.c.
- 1042 Direct-acting indicating electrical measuring instruments and their accessories
- 1147 Electrical equipment for coal mines—Insulating materials
- 1147.1 Part 1: Materials for insulating power conducting components
- 1299 Electrical equipment for coal mines—Flameproof restrained plugs and receptacles
- 1300 Electrical equipment for coal mines—Bolted flameproof cable coupling devices
- 1775 Low voltage switchgear and controlgear—Air-break switches, isolators and fuse-combination units (up to and including 1000 V a.c. and 1200 V d.c.)
- 1825 Electrical equipment for explosive atmospheres—Pressurized enclosures—Type of protection p
- 1828 Electrical equipment for explosive atmospheres—Cable glands
- 1864 High voltage alternating current contactors
- 1930 Circuit-breakers for distribution circuits (up to and including 1000 V a.c. and 1200 V d.c.)
- 1931 High voltage testing techniques
- 1931.1 Part 1: General definitions, test requirements, test procedures and measuring devices
- 1939 Classification of degrees of protection provided by enclosures for electrical equipment
- 1972 Cables for use below ground in coal mines (other than trailing cables)
- 2006 High voltage a.c. switchgear and controlgear—Circuit breakers for rated voltages above 1000 V
- 2024 High voltage fuse/switch combinations and fuse/circuit-breaker combinations
- 2081 Electrical equipment for coal and shale mines—Electrical protection devices
- 2081.2 Part 2: Earth-continuity monitoring devices
- 2081.3 Part 3: Earth-leakage protection devices for use on systems incorporating earth-fault current limiters
- 2081.4 Part 4: Lockout earth-fault protection devices
- 2081.5 Part 5: Earth-fault current limiters
- 2086 High-voltage a.c. switchgear and controlgear—Metal-enclosed—Rated voltages above 1 kV up to and including 72.5 kV.
- 2184 Low voltage switchgear and controlgear—Moulded-case circuit-breakers for rated voltages up to and including 600 V a.c. and 250 V d.c.
- 2374 Power transformers
- 2374.1 Part 1: General requirements
- 2374.5 Part 5: Ability to withstand short-circuit