

Australian/New Zealand Standard™

**Electrical equipment in mines and
quarries—Surface installations and
associated processing plant**



AS/NZS 3007:2013

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-023, Electrical Equipment for Mines and Quarries. It was approved on behalf of the Council of Standards Australia on 29 April 2013 and on behalf of the Council of Standards New Zealand on 23 April 2013.
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Australian Chamber of Commerce and Industry
Australian Coal Association
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Aviation and Marine Engineers Association
Consult Australia
Department of Mines and Petroleum, WA
Department of Natural Resources and Mines, Qld
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This Standard was issued in draft form for comment as DR AS/NZS 3007.

Australian/New Zealand Standard™

Electrical equipment in mines and quarries—Surface installations and associated processing plant

Originated in Australia as AS 3007.1—1982, AS 3007.2—1982, AS 3007.3—1982, AS 3007.4—1985 and AS 3007.5—1987. Previous editions AS 3007.1—2004, AS 3007.2—2004, AS 3007.3—2004, AS 3007.4—2004 and AS 3007.5—2004. Jointly revised, amalgamated and redesignated AS/NZS 3007:2013.

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-023, Electrical Equipment for Mines and Quarries, to supersede Parts 1 to 5 of AS 3007—2004.

The objective of this Standard is to set out guiding principles for the design, installation, and operation of electrical equipment in mines and quarries so as to ensure the safety of persons, livestock and property, and the proper functioning of the plant.

Australian mining operations typically involve most aspects of electrical engineering, ranging from such areas as high voltage transmission to the control of undesirable static electricity. A substantial number of Standards therefore apply to such work. This Standard consolidates these requirements together into the one document.

This edition of the Standard differs from the previous editions in the following significant ways:

- (a) This Standard incorporates the requirements for the surface of underground mines in addition to surface mines, quarries and associated processing plant.
- (b) Where issues are adequately covered by AS/NZS 3000, AS 2067, and AS 60204, they have been removed from this version of AS/NZS 3007 to prevent conflict.
- (c) Relevant parts of AS/NZS 4871 (series) that apply to installations covered by the scope of this Standard have been included.
- (d) Particular requirements have been included to address known deficiencies in installation and practices.
- (e) Definitions have been aligned with other key Standards.
- (f) Requirements for transportable/relocatable distribution and control equipment have been added.
- (g) The requirements for flexible feeder, trailing, and reeling cables have been expanded.
- (h) The requirements for overhead lines have been expanded.
- (i) The requirements for specific types of power supplies have been updated.
- (j) Requirements for labelling have been updated.
- (k) Requirements for managing change within the mining operation have been added.
- (l) Information about the power supply to safety critical infrastructure for underground mines has been added.
- (m) Requirements for reclaim and transfer tunnels have been added.
- (n) Information about variable speed drives has been added.
- (o) Appendix F has been added to provide earthing requirements for mines. (This Appendix will be deleted by amendment when AS 2067 has been amended to include mine earthing.)

In recognition of changes introduced in this revision of this Standard, existing installations and equipment should be reviewed against the requirements of this Standard.

Descriptions of TN, TT and IT power supply systems have been retained as they are not found elsewhere within standards.

The terms ‘normative’ and ‘informative’ are used to define the application of the appendix to which they apply. A normative appendix is an integral part of a standard, whereas an informative appendix is only for information and guidance.

Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

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STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND**Australian/New Zealand Standard****Electrical equipment in mines and quarries—Surface installations and associated processing plant****SECTION 1 SCOPE AND GENERAL****1.1 SCOPE**

This Standard applies to the design, installation and operation of electrical plant and equipment installed at surface mining and quarrying operations, the surface of underground mines, and associated processing plants.

There are particular requirements for the following:

- (a) The operation of equipment and personnel interacting with electrical installations.
- (b) Trailing cable fed machinery used for digging/winning product (i.e. electric draglines, electric face shovels, floating dredges, and electric drills), and transporting, stacking and reclaiming product (i.e. conveying systems, balance machinery such as stackers and reclaimers).
- (c) Power generation and distribution equipment used to supply trailing cables and relocatable plant.
- (d) Power and distribution on IT (impedance earthed) systems, TN and TT systems.
- (e) Earthing systems for power distribution to underground mines.
- (f) Overhead lines on a mine site.
- (g) Relocatable plant and buildings.
- (h) Fixed plant.

This Standard does not apply to the following areas:

- (i) Earth moving machinery covered by ISO 6165 and not fed by trailing or reeling cables.
- (ii) The design of mine winder control systems.

The Standard describes the types of electrical distribution systems.

This Standard supplements the requirements of AS/NZS 3000, AS 2067, and AS 60204 for installations in the harsh environments found in mining and quarrying operations.

Where equipment is located on the surface and there is conflict with the AS/NZS 4871 series, this Standard takes precedence.

NOTES:

- 1 The requirements of this Standard may be read in conjunction with, but do not take precedence over, regulations of a regulatory authority that may apply in a specific area.
- 2 In some instances, State legislation refers to parts of the previous version of this Standard, therefore it is important to note that these parts have now been combined into the one document.