

Australian/New Zealand Standard™

**Electrical equipment for mines and
quarries**

Part 1: General requirements



AS/NZS 4871.1:2012

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-023, Electrical Equipment in Mines and Quarries. It was approved on behalf of the Council of Standards Australia on 13 November 2012 and on behalf of the Council of Standards New Zealand on 1 November 2012. This Standard was published on 7 December 2012.

The following are represented on Committee EL-023:

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Australian Coal Association
Australian Industry Group
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Department of Mines and Petroleum, WA
Department of Trade and Investment, Regional Infrastructure and Services, NSW
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Electrical equipment for mines and quarries

Part 1: General requirements

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-023, Electrical Equipment in Mines and Quarries, to supersede AS/NZS 4871.1:2010, *Electrical equipment for mines and quarries, Part 1: General requirements*.

This Standard incorporates Amendment No. 1 (April 2014). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The objective of this Standard is to set out the minimum design, manufacturing, testing and performance requirements for electrical equipment intended for use in mines and quarries.

This Standard is Part 1 of the series AS/NZS 4871, *Electrical equipment for mines and quarries*, which comprises the following parts:

- Part 1: General requirements (this Standard)
- Part 2: Distribution, control and auxiliary equipment
- Part 3: Substations
- Part 4: Mains powered electrical mobile machines
- Part 5: Battery powered electrical mobile machines
- Part 6: Diesel powered machinery and ancillary equipment

This Standard differs from the 2010 edition as follows:

- (a) Additional requirements for high voltage tests including partial discharge and impulse testing. Appendix H updated with details for partial discharge and impulse test methods.
- (b) Creepage and clearance requirements altered in light of additional high voltage testing.
- (c) Requirements for earth-protection scheme clarified and additional information included in Appendix C.
- (d) Revised requirements for pilot protection of restrained receptacles, earth fault lockout and earth continuity in hazardous zones.
- (e) Minor changes of clarification.

The terms 'normative' and 'informative' have been used in this Standard 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.

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Australian/New Zealand Standard
Electrical equipment for mines and quarries

Part 1: General requirements

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out the general requirements for the design, construction and testing of electrical equipment directly associated with mining and quarrying activities, and covers any plant intended to be relocated. This includes the types of equipment covered in AS/NZS 4871, Parts 2 to 6. These requirements are in addition to those in AS 60204.1 and AS 60204.11, which cover electrical safety of machinery. This Standard does not apply to handheld equipment.

NOTES:

- 1 For permanently fixed equipment and installations, such as equipment in offices or amenities and fixed processing plant, reference should be made to AS/NZS 3000, AS 3007 and AS 2067.
- 2 The requirements of this Standard should be read in conjunction with, but do not take precedence over, regulations of a regulatory authority that may apply in a specific area.

1.2 APPLICATION

Where there is conflict between AS 60204 series Standards and AS/NZS 4871 series Standards, then AS/NZS 4871 series Standards shall apply.

1.3 SERVICE CONDITIONS

Electrical equipment complying with this Standard shall be suitable, within the limits of its ratings, for installation under the following service conditions:

- (a) *Range of ambient temperature*—Ambient temperatures within the range of -5°C to 40°C .

NOTE: Where higher temperatures are possible, consideration should be given to the design of equipment.

- (b) *Humidity*—The relative humidity of the mine environment may vary between 30% and dew point.

- (c) *Environmental conditions*—Conditions peculiar to mining such as chemical fumes, wetting agents, stone dusting and corrosive agents present in mine water.

NOTE: Certain applications may require service conditions outside those specified above. For such applications reference should be made to AS 60204.1.

1.4 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
1319	Safety signs for the occupational environment
1824	Insulation co-ordination
1824.1	Part 1: Definitions, principles and rules