

Australian/New Zealand Standard™

**Electric cables—Underground coal
mines—Other than reefing and trailing**

STANDARDS
Australia



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AS/NZS 1972:2006

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-003, Electric Wires and Cables. It was approved on behalf of the Council of Standards Australia on 22 March 2006 and on behalf of the Council of Standards New Zealand on 31 March 2006.

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The following are represented on Committee EL-003:

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Australian Electrical and Electronic Manufacturers Association
Australian Industry Group
Canterbury Manufacturers Association, New Zealand
Department of Primary Industries, Mine Safety (NSW)
Electrical Contractors Association of New Zealand
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RECONFIRMATION
OF
AS/NZS 1972:2006
Electric cables—Underground coal mines—
Other than reeling and trailing

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-003, Electric Wires and Cables, to supersede AS/NZS 1972:2002.

The objective of this Standard is to specify the construction, dimensions and tests for cables used underground in coal mines, excluding reeling and trailing cables.

The Standard applies to cables and flexible cables intended for underground use in coal mines, but does not apply to reeling and trailing cables, which are covered by AS/NZS 1802, *Electric cables—Reeling and trailing—For underground coal mining purposes*, cables for use in intrinsically safe (IS) circuits and data, communication and control cables not specifically covered by this Standard. This Standard includes requirements for cables intended for fixed apparatus (e.g. power, lighting and control circuitry); impregnated paper insulated and polymeric insulated power cables for use at working voltages of 1.9/3.3 (3.6) kV up to and including 19/33 (36) kV; feeder cables for connecting equipment to substations; cables for both the internal and external wiring on machines and mine shaft winder cables. These cables may be used in other applications where a risk assessment has been carried out to establish their suitability.

In each case, the requirements are supplementary to those in other Australian/New Zealand Standards for cables and flexible cords. These extra requirements are necessary to meet the more onerous conditions existing for cables used in underground coal mines.

This Standard is required to be used in conjunction with the requirements of the regulatory authorities administering regulations for the use of electricity in underground coal mines.

The need for new or modified cables will be addressed when the situation arises.

This Standard differs from the 2002 edition as follows:

- (a) An additional type of machine cable, Type 2S.3, with a voltage designation of 3.3/3.3 kV has been introduced into Section 5.
- (b) The voltage designation of Types 1, 2, 2S, 3, 3S, 7, 7S and 8 machine cables has been changed from 0.6/1 (1.2) kV to 1.1/1.1 kV.
- (c) A new a.c. high voltage test has been included for cables designated as 1.1/1.1 kV in order to demonstrate that these cables are able to withstand 1.1/1.1 kV conditions.
- (d) As AS 1979 has been withdrawn, relevant content from this Standard has been incorporated into Section 6.
- (e) Appropriate cable diameters have been deleted from the tables of dimensions in Appendix C.
- (f) Appendix D, covering machine cables with critical overall diameters, has been deleted.

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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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies the construction of cables used in underground coal mines.

This Standard does not apply to reeling and trailing cables, which are covered by AS/NZS 1802, cables for use in IS circuits and data, communication and control cables unless specifically covered.

NOTE: Guidelines on information that should be supplied with enquiries or orders are provided in Appendix A.

1.2 APPLICATION

The cables shall comply with the requirements of regulatory authorities and with the following sections, as appropriate:

0.6/1 (1.2) kV cables for fixed apparatus	Section 2
Armoured cables for use at working voltages of 1.9/3.3 (3.6) kV up to and including 19/33 (36) kV	Section 3
Feeder cables	Section 4
Machine cables	Section 5
Mine shaft winder cables	Section 6

The cables covered by this Standard shall be suitable for use in a distribution system where a phase-to-earth fault could produce a situation where U_0 may rise to equal U .

Cables covered by Section 4 and Section 5 are rated as U/U . They are considered as being capable of continuous operation with phase-to-earth voltage equivalent to phase-to-phase voltage without damage to cable insulation.

Cables covered by other Sections are rated as U_0/U and are not considered as being capable of continuous operation with phase-to-earth voltage equivalent to phase-to-phase voltage.

NOTE: Appendix B should be consulted when selecting the required voltage rating for cables rated 3.3 kV and above.

In addition to the requirements of the particular section of this Standard, cables shall comply with the relevant requirements of the following Standards, as appropriate for the types of cables specified.

Section 2	AS/NZS 5000.1
Section 3	AS/NZS 1026 or AS/NZS 1429.1
Section 5	Type 1 AS/NZS 5000.1
	Type 2, 2S AS/NZS 5000.1
	Type 3, 3S AS/NZS 5000.1
	Type 7, 7S AS/NZS 5000.1