

Australian Standard[®]

**Earth-moving machinery and
ancillary equipment for use in
mines—Electrical wiring systems
at extra-low voltage**

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The following interests are represented on Committee EL/38:

Australian Coal Association
Australian Mining Industry Council
Construction and Mining Equipment Association of Australia
Department of Development and Resources, Tas.
Department of Minerals and Energy W.A.
Department of Mineral Resources, N.S.W.
Institute of Mining Electrical and Mining Mechanical Engineers
Society of Automotive Engineers Australasia
Tractor and Machinery Association of Australia

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PREFACE

This Standard was prepared by the Standards Australia Committee on Wiring Systems for Heavy Vehicles for Use in Mines, in response to a request from the Department of Mineral Resources, New South Wales.

Request for development of this Standard was prompted by incidents of varying severity at mine sites in New South Wales, involving injury to persons and damage to earth-moving machines and equipment, that were directly attributable to deficiencies in the automotive electrical systems. Such incidents, particularly those involving electrically initiated fires, were also noted to have been experienced in other States.

The objective of this Standard is to minimize the risk of injury to persons and damage to equipment arising from the design, installation, maintenance and servicing of extra-low voltage (automotive type) wiring systems of earth-moving machinery and ancillary equipment used in surface and underground mines.

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Australian Standard

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard specifies requirements for the design, installation, maintenance and servicing of electrical wiring systems of earth-moving machinery and ancillary equipment for use in mines. It relates to wiring systems of the automotive type operated at extra-low voltage.

The Standard generally applies to earth-moving machinery and ancillary equipment, incorporating internal combustion engines for motive power or other purposes such as drilling or pumping, for use in open-cut and in underground mines. However, where intended for use in underground coal mines, additional requirements may apply.

The Standard does not apply to machines or equipment intended for use in quarries.

1.2 APPLICATION This Standard is intended for use by suppliers of earth-moving machinery and ancillary equipment, mining regulatory authorities, and operating, service and other persons concerned with the safe use of the equipment at open-cut and underground mine sites.

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

AS

1102 Graphical symbols for electrotechnology (all parts)*

1103 Diagrams, charts and tables for electrotechnology (all parts)†

ISO

9247 Earth-moving machinery—Electrical wires and cables—Principles of identification and marking

11862 Earth-moving machinery—Auxiliary starting aid electrical connector

1.4 DEFINITIONS For the purpose of this Standard, the definitions below apply.

1.4.1 Active conductor—any conductor that is maintained at a potential different to the main body of the machine.

1.4.2 Cable—a single cable core, or two or more cable cores laid-up together, either with or without fillings, reinforcements, or protective coverings.

1.4.3 Cable core—the conductor with its insulation (dielectric) but not including any mechanical protective covering.

* Based on the corresponding series of Standards issued under IEC 617, *Graphical symbols for diagrams*.

† Based on the corresponding series of Standards issued under IEC 113, *Diagrams, charts, tables*.

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