AS/NZS 1429.1:2000
(Incorporating Amendment Nos. 1 and 2)

Australian/New Zealand Standard™

Electric cables—Polymeric insulated

Part 1: For working voltages 1.9/3.3 (3.6) kV up to and including 19/33 (36) kV

Standards Australia

STANDARDS NEW ZEALAND
Paerewa Aotearoa

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 28 April 2000 and on behalf of the Council of Standards New Zealand on 12 April 2000. It was published on 16 June 2000.

The following interests are represented on Committee EL-003:

Australasian Railway Association
Australian Electrical and Electronic Manufacturers Association
Australian Industry Group
Department of Defence (Australia)
Department of Mineral Resources, N.S.W.
Electrical Contractors Association of New Zealand
Electricity Supply Association of Australia
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Regulatory Authorities (Electrical)
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL/3, Electric Wires and Cables, to supersede AS 1429.1—1993, *Electric cables—Polymeric insulated*, Part 1: *For working voltages 1.9/3.3 (3.6) kV up to and including 19/33 (36) kV*.

This Standard incorporates Amendments No. 1 (April 2002) and No. 2 (June 2002). 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.

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

(a) This Standard is published as a Joint Australian/New Zealand Standard.

(b) The extruded insulation screen thickness has been rationalized at 0.6 mm minimum at any point.

(c) Additional non-metallic sheath materials are allowed and appropriate requirements have been added.

(d) Routine voltage test levels have been increased.

(e) The test levels for the 4 h high voltage test have been increased.

(f) Many changes have been made to align with IEC 60502.

(g) d.c. test after installation is not recommended.

In the preparation of this Standard, consideration was given to the following publications and acknowledgment is made of the assistance received:

IEC 60229, *Tests on cable oversheaths which have a special protective function and are applied by extrusion*

IEC 60502-1, *Power cables with extruded insulation and their accessories for rated voltages from 1 kV (U_m = 1.2 kV) up to 30 kV (U = 36 kV)*

IEC 60811, *Common test methods for insulating and sheathing materials of electric cables* (all Parts)

AEIC No. CS5, *Crosslinked polyethylene insulated shielded power cables rated 5 kV through 46 kV*

AEIC No. CS6, *Ethylene propylene rubber insulated shielded power cables rated 5 kV through 69 kV*

NEMA No. WC 7 ICEA Publication No. S-66-524, *Cross-linked-thermosetting-polyethylene-insulated wire and cable for the transmission and distribution of electrical energy*

NEMA No. WC 8 ICEA Publication No. S-68-516, *Ethylene-propylene-rubber-insulated wire and cable for the transmission and distribution of electrical energy*

The nominal cross-sectional areas of the conductors specified herein are identical with the values specified in AS 1125, *Conductors in insulated electric cables and flexible cords*.

The dimensions for insulation and non-metallic sheath thicknesses are identical with the values recommended in IEC 60502. Certain tests and criteria in this Standard are more stringent than those in IEC 60502.

Two types of insulation compounds are specified in this Standard, namely insulation comprising cross-linked polyethylene (XLPE) and insulation comprising ethylene propylene rubber (EPR).

Although the Standard provides tables of insulation thicknesses and the necessary information to establish precisely the dimensions of the cable protective coverings, no cable dimension tables are provided owing to the variety of cable constructions that could possibly affect such dimensions.

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.

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

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S E C T I O N 1 S C O P E A N D G E N E R A L

1.1 SCOPE

This Standard specifies requirements for cross-linked polyethylene (XLPE) and ethylene propylene rubber (EPR) insulated cables for fixed installations for electricity supply.

NOTE: Optional requirements for metal sheath, armour, water-blocking, protection from insect attack and metre marking on cable are provided in Clauses 2.9, 2.12, 2.14, 2.15 and 2.17 respectively.

Sections 1 to 3 of this Standard cover the general requirements for cables with individually or collectively screened cores, Section 4 requirements are specific to cables with individually screened cores, and Section 5 requirements are specific to three-core cables with collectively screened cores.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
1018	Partial discharge measurements
1125	Conductors in insulated electric cables and flexible cords
1931	High voltage testing techniques
1931.1	Part 1: General definitions and test requirements
1931.2	Part 2: Measuring systems
2893	Electric cables—Lead and lead alloy sheaths—Composition
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1429	Electric cables—Polymeric insulated
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1660	Test methods for electric cables, cords and conductors (all parts)
2857	Timber drums for insulated electric cables and bare conductors
3808	Insulating and sheathing materials for electric cables
IEC	
60949	Calculation of thermally permissible short-circuit currents, taking into account non-adiabatic heating effects
60986	Guide to the short-circuit temperature limits of electric cables with a rated voltage from 1.8/3 (3.6) kV to 18/30 (36) kV