

Australian/New Zealand Standard™

Electric cables—Polymeric insulated

Part 1: For working voltages up to and including 0.6/1 (1.2) kV

AS/NZS 5000.1:2003

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 19 September 2003 and on behalf of the Council of Standards New Zealand on 30 September 2003. It was published on 28 November 2003.

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Department of Mineral Resources N.S.W.
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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 5000.1:1999 and AS 3178—1991, *Approval and test specification—Electric cables—Silicone rubber insulated— For working voltages up to and including 0.6/1 kV*.

The objective of this Standard is to provide manufacturers and suppliers with construction details, dimensions and tests for cables and flexible cables insulated with thermoplastic, elastomer or XLPE materials intended for use in electrical installations at working voltages up to and including 0.6/1 (1.2) kV.

This Standard differs from the 1999 edition as follows:

- (a) X-90UV and R-S-150 have been included in the list of insulation materials.
- (b) TPE-75 and TP-90 have been deleted from the list of insulation materials.
- (c) Only PVC materials have been specified for insulation of aerial cables or fixed cables used in outdoor applications.
- (d) Bedding, separation layer, armour, metallic sheath, non-metallic braid and further protection have been designated as optional processes.
- (e) The Clause covering bedding requirements has been rewritten to improve clarity.
- (f) A mandatory non-metallic sheath has been specified for cables with polyolefin insulation.
- (g) Polyolefin materials have been deleted from the list of non-metallic sheath materials.
- (h) The specification for reduced thickness sheaths over armour has been deleted.
- (i) A specification has been provided for the thickness of non-metallic sheath where the sheath consists of two layers of material.
- (j) An optional non-metallic braid has been included.
- (k) The type of cables or cable components on which the spark test and high voltage test for five minutes is carried out, has been amended.

In the preparation of this Standard, consideration was given to 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 ($U_m = 36$ kV)*, Part 1: *Cables for rated voltages of 1 kV ($U_m = 1,2$ kV) and 3 kV ($U_m = 3,6$ kV)* and acknowledgment is made of the assistance received from that source.

The nominal cross-sectional areas of the conductors specified in this Standard are based on the values recommended in IEC 60228, *Conductors of insulated cables*.

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 are deemed to be requirements of this Standard.

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1 SCOPE

This Standard specifies construction, dimensions and tests for single and multicore cables insulated with polymeric materials intended for use in electrical installations at working voltages up to and including 0.6/1 (1.2) kV.

It does not apply to polymeric insulated cables for special installations and service conditions or for which there are separate Australian/New Zealand Standards, e.g. flexible lift control cables, neutral screened cables, welding cables, flexible cords and aerial bundled cables.

NOTES:

- 1 Purchasing guidelines are contained in Appendix A.
- 2 AS/NZS 3008.1 should be referenced to assist correct cable size selection for the intended application and installation.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

2706 Numerical values—Rounding and interpretation of limiting values

AS/NZS

- 1125 Conductors in insulated electric cables and flexible cords
- 1660 Test methods for electric cables, cords and conductors
- 1660.1 Part 1: Conductors and metallic components
- 1660.2.1 Part 2.1: Insulation, extruded semi-conductive screens and non-metallic sheaths—Methods for general application
- 1660.2.2 Part 2.2: Insulation, extruded semi-conductive screens and non-metallic sheaths—Methods specific to elastomeric, XLPE and XLPVC materials
- 1660.2.3 Part 2.3: Insulation, extruded semi-conductive screens and non-metallic sheaths—Methods specific to PVC and halogen free thermoplastic materials
- 1660.3 Part 3: Electrical tests
- 1660.5.6 Part 5.6: Fire tests—Test for combustion propagation
- 2893 Electric cables—Lead and lead alloy sheaths—Composition
- 3008 Electrical installations—Selection of cables
- 3008.1 Part 1: Cables for alternating voltages up to and including 0.6/1 kV
- 3560 Electric cables—Cross-linked polyethylene insulated—Aerial bundled—For working voltages up to and including 0.6/1(1.2) kV (both Parts)
- 3808 Insulating and sheathing materials for electric cables
- 3863 Galvanized mild steel wire for armouring of cables