AS/NZS 3008.1.1:2017

Australian/New Zealand Standard™

Electrical installations—Selection of cables

Part 1.1: Cables for alternating voltages up to and including 0.6/1 kV—Typical Australian installation conditions

STANDARDS Australia

STANDARDS NEW ZEALAND PAEREWA AOTEAROA

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-001, Wiring Rules. It was approved on behalf of the Council of Standards Australia on 11 January 2017 and by the New Zealand Standards Approval Board on 17 November 2016.
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The following are represented on Committee EL-001:

Australian Building Codes Board
Australian Industry Group
Communications, Electrical and Plumbing Union—Electrical Division
Consumers Federation of Australia
Electrical Contractors Association of New Zealand
Electrical Regulatory Authorities Council
Electrical Safety Organisation, New Zealand
ElectroComms and Energy Utilities Industries Skills Council
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Ministry of Business, Innovation and Employment, New Zealand
National Electrical and Communications Association
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New Zealand Council of Elders
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We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of Standards Australia or the New Zealand Standards Executive at the address shown on the back cover.

This Standard was issued in draft form for comment as DR AS/NZS 3008.1.1:2015.

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-001, Wiring Rules, to supersede AS/NZS 3008.1.1:2009, *Electrical installations—Selection of cables*, Part 1.1: *Cables for alternating voltages up to and including 0.6/1 kV—Typical Australian installation conditions*.

This Standard is applicable to Australian installation conditions where the nominal ambient air and soil temperatures are 40°C and 25°C, respectively. AS/NZS 3008.1.2 is applicable to New Zealand installation conditions where the nominal air and soil temperatures are 30°C and 15°C respectively. Each Part is a complete Standard and requires no reference to the other.

AS/NZS 3008.1.2 deals with cables for use with alternating voltages over 1 kV.

The objective of this Standard is to specify current-carrying capacity, voltage drop and short-circuit temperature rise of cables, to provide a method of selection for those types of electric cables and methods of installation that are in common use at working voltages up to and including 0.6/1 kV at 50 Hz a.c.

This Standard differs from the 2009 edition and its subsequent amendments as follows:

(a) Economic optimization for cable selection recommendations, including a new example in Appendix A.

(b) A new definition for Circuit.

(c) Cable core cross sections have been updated for the following:

  (i) Figure 1.

  (ii) Table 3(1).

  (iii) Table 3(2).

  (iv) Table 3(3).

  (v) Table 3(4).

  (vi) Table 10.

  (vii) Table 11.

  (viii) Table 12.

  (ix) Table 13.

  (x) Table 14.

  (xi) Table 15.

  (xii) Table 17.

  (xiii) Table 26(2).

(d) New notes to Tables 30, 31, 40, 41, 43, 44, 46, 47, 50 and 51 have been included.

(e) Changes to derating factors in Table 23.

(f) Circuit recommendations for low magnetic fields added to Appendix D.

In the preparation of this Standard, reference was made to IEC 60287 and acknowledgement is made of the assistance received from that source.

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

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

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SECTION 1 SCOPE AND APPLICATION

1.1 SCOPE

This Standard sets out a method for cable selection for those types of electrical cables and methods of installation that are in common use at working voltages up to and including 0.6/1 kV at 50 Hz a.c.

NOTE: Although the Standard specifically applies to a.c. installations, it may also be applied to d.c. installations.

Four criteria are given for cable selection, as follows:

(a) Current-carrying capacity.

(b) Voltage drop.

(c) Short-circuit temperature rise.

(d) Economic optimization.

This Standard provides sustained current-carrying capacities and voltage drop values for those types of electrical cable and installation practices in common use in Australia. A significant amount of explanatory material is also provided on the application of rating factors that arise from the particular installation conditions of a single circuit or groups of circuits. Also, provided in Section 5 is information on cable selection based on short-circuit temperature limits.

NOTE: A number of worked examples on cable selection are included in Appendix A.

This Standard does not take into account the effects that may occur owing to temperature rise at the terminals of equipment and reference is necessary to AS/NZS 3000 and the individual equipment Standards.

NOTE: For ease of reference, an index of the Tables included in this Standard is provided in Appendix B.

1.2 APPLICATION

This Standard is intended to apply to installations made or carried out after the date of publication, but it is recommended that it not be applied on a mandatory basis until 6 months after the date of publication. However, if work on an installation commenced before publication of this edition, the inspecting authority may grant permission for the installation to be carried out in accordance with the superseded edition.