AS 1154.1—2009

Australian Standard®

Insulator and conductor fittings for overhead power lines

Part 1: Performance, material, general requirements and dimensions

This Australian Standard® was prepared by Committee EL-010, Overhead Lines. It was approved on behalf of the Council of Standards Australia on 4 November 2008.
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The following are represented on Committee EL-010:

- Australasian Railway Association
- Australian Chamber of Commerce and Industry
- Australian Electrical and Electronic Manufacturers Association
- Australian Porcelain Insulators Association
- Electricity Engineers Association, New Zealand
- Energy Networks Association

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Australian Standard®

Insulator and conductor fittings for overhead power lines

Part 1: Performance, material, general requirements and dimensions

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-010, Overhead Lines, to supersede AS 1154.1—2004, *Insulator and conductor fittings for overhead power,* Part 1: *Performance, material, general requirements and dimensions*. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian rather than an Australian/New Zealand Standard.

The objective of this Standard is to provide users and manufacturers of fittings with definitions of terms, performance requirements, dimensions, test methods and acceptance criteria.

This Standard is one of a two-part series covering insulator and conductor fittings for overhead power lines, as follows:

Part 1: Performance, material, general requirements and dimensions (this Standard, which combines the former Part 1 and Part 2).

Part 3: Performance and general requirements for helical fittings.

In this revision reference is made to 120 kN rated fittings. These fittings employ M16 fasteners with 16 mm ball/socket couplings and, whilst maintaining the same dimensions, are essentially higher strength versions of the 70 kN fittings. These are NOT intended to be replacements for the previous rating of 125 kN that employed M18 fasteners with 20 mm couplings—these are mechanically similar but dimensionally quite different. If, for the purpose of maintenance, purchasers have need for 120 kN/125 kN fittings in their existing network, this is to be made clear to suppliers to avoid any confusion or incompatibility. Provision has been made by many to supply 100 kN fittings with high strength M18 bolts for these situations.

In the preparation of this Standard, consideration was given to IEC 61284:1997, *Overhead lines—Requirements and tests for fittings*, and IEC 61897:1998, *Overhead lines—Requirements and tests for Stockbridge type aeolian vibration dampers*, relevant parts of which have been incorporated in this Standard.

The following part of this Standard is technically identical to IEC 61284:1997:

Section 5, *Suspension and support fittings* is technically identical to Clauses 11.2—11.4 of IEC 61284:1997.

The following parts of this Standard are technically identical to IEC 61897:1998:

(a) Clause 7.2.2.3, *Field test*, is technically identical to Clause 7.11.3.3 of IEC 61897:1998.

(b) Clause 7.2.2.4, *Analytical method*, is technically identical to Clause 7.11.3.4 of IEC 61897:1998.

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

The term ‘normative’ has been used in this Standard to define the application of the appendix to which it applies. A ‘normative’ appendix is an integral part of a Standard.

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STANDARDS AUSTRALIA

Australian Standard
Insulator and conductor fittings for overhead power lines

Part 1: Performance, material, general requirements and dimensions

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out performance and general requirements for insulator and conductor fittings (other than helical fittings, OPGW and ADSS fittings, which are covered in AS 1154.3) together with the critical dimensions for cast, forged or fabricated insulator fittings for use on overhead electric power lines using insulators with minimum failing loads of 70 kN, 120 kN and 160 kN.

Pulling eyes provided to assist installation and fittings for insulated service lines, aerial bundled cables and high-voltage covered conductors are not covered by this Standard.

Fittings for high-temperature conductors are not covered by this Standard.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
1110	ISO metric hexagon bolts and screws—Product grades A and B
1110.1	Part 1: Bolts
1111	ISO metric hexagon bolts and screws—Product grade C
1111.1	Part 1: Bolts
1112	ISO metric hexagon nuts
1112.1	Part 1: Style 1—Product grades A and B
1112.2	Part 2: Style 2—Product grades A and B
1112.3	Part 3: Product grade C
1112.4	Part 4: Chamfered thin nuts—Product grades A and B
1154	Insulator and conductor fittings for overhead power lines
1214	Hot-dip galvanized coatings on threaded fasteners (ISO metric coarse thread series)
1237	Plain washers for metric bolts, screws and nuts for general purposes
1237.1	Part 1: General plan
1237.2	Part 2: Tolerances
1442	Carbon steels and carbon-manganese steels—Hot-rolled bars and semi-finished products
1444	Wrought alloy steels—Standard, hardenability (H) series and hardened and tempered to designated mechanical properties
1448	Carbon steel and carbon-manganese steels—Forgings (ruling section 300 mm maximum)