AS 1154, Part 1—1980
UDC 621.315.652

Australian Standard 1154, Part 1—1980

INSULATOR AND CONDUCTOR FITTINGS FOR OVERHEAD POWER LINES

Part 1—PERFORMANCE AND GENERAL REQUIREMENTS

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments were officially represented on the committee entrusted with the preparation of this standard:

Australian Electrical and Electronic Manufacturers Association

Australian Porcelain Insulators and Technical Ceramic Manufacturers Association

Confederation of Australian Industry

Electrical and Radio Federation of Victoria

Energy Authority of New South Wales

Electricity Supply Association of Australia

Railways of Australia Committee

This standard, prepared by Committee EL/10, Overhead Line Material, was approved on behalf of the Council of the Standards Association of Australia on 5 November 1979, and was published on 1 February 1980.

AUSTRALIAN STANDARD

INSULATOR AND CONDUCTOR FITTINGS FOR OVERHEAD POWER LINES

Part 1 PERFORMANCE AND GENERAL REQUIREMENTS

AS 1154, Part 1—1980

First issued (as AS C345, Part I) 1962
Revised and issued as AS 1154, Part 1 1972
Revised 1980

PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.

ISBN 0 7262 1817 0

PREFACE

This standard was prepared by the Association's Committee on Overhead Line Materials as a revised edition of AS 1154, Part 1—1972. It deals with standards of performance for the various types of fittings used on overhead power lines, excluding service lines, in close association with the insulators and conductors.

The standard is in two Parts. This Part defines the terms used, gives general requirements and prescribes the manner in which tests shall be performed. Part 2 is concerned with dimensional standardization and is confined to a limited range of fittings.

The requirements of this Part 1 are applicable to fittings made of any material acceptable to the purchaser.

This revision includes a review of the tests and criteria for fittings, the galvanizing of fittings, and brings up to date the list of related Australian standards to be used in conjunction with this standard.

This standard requires reference to the following Australian standards:

AS 1111	ISO Metric Hexagon Commercial Bolts and Screws
AS 1112	ISO Metric Hexagon Nuts, Including Thin Nuts, Slotted Nuts and Castle Nuts
AS 1137	Insulators Part 1—Porcelain and Glass Insulators for Overhead Power Lines
AS 1214	Hot-dip Galvanized Coatings on Threaded Fasteners (ISO Metric Coarse Thread Series)
AS 1220	Aluminium Conductors Steel Reinforced for Overhead Power Transmission Purposes Part 1—Galvanized Steel Reinforced (ACSR/GZ). Part 2—Aluminized Steel Reinforced (ACSR/AZ) Part 3—Aluminium-clad Steel Reinforced (ACSR/AC)
AS 1222	Steel Conductors and Stays for Overhead Power Transmission Purposes Part 1—Galvanized (SC/GZ) Part 2—Aluminium Clad (SC/AC)
AS 1531	Aluminium Conductors for Overhead Power Transmission Purposes Part 1—All-aluminium Conductors (AAC) Part 2—All-aluminium Alloy Conductors (AAAC)
AS 1566	Copper and Copper Alloy Plate, Rolled Bar, Sheet, Strip and Foil for General Engineering Purposes
AS 1650	Galvanized Coatings on Ferrous Articles
AS 1746	Hard-drawn Copper Conductors for Overhead Power Transmission Purposes
AS 1852	International Electrotechnical Vocabulary
AS B19[illegible]	Plain Limit Gauges: Limit and Tolerances

CONTENTS

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
INSULATOR AND CONDUCTOR FITTINGS FOR OVERHEAD POWER LINES

PART 1—PERFORMANCE AND GENERAL REQUIREMENTS

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard sets out performance and general requirements for insulator and conductor fittings for use on overhead electric power lines, excluding service lines.

1.2 APPLICATION. The fittings shall comply with the relevant requirements of this Section and with the specific requirements of the following Sections, as appropriate:

Section 2—Insulator Pins
Section 3—Insulator Set Fittings and Earth Conductor Fittings
Section 4—Anchor Devices and Tension Joints
Section 5—Non-tension Joints
Section 6—Suspension Devices
Section 7—Electrical Control Fittings
Section 8—Mechanical Protective Fittings

1.3 DEFINITIONS. For the purposes of this standard, the definitions given in AS 1137 and AS 1852 apply as well as the following definitions.

1.3.1 Failing load—the greatest load which can be applied to a fitting under the prescribed conditions of test.

1.3.2 Specified minimum failing load—the minimum failing load specified by the purchaser or declared by the supplier.

1.3.3 Nominated conductor tension—the conductor tension specified by the purchaser or supplier, and is the calculated working tension under wind load, combination of loads, and temperature conditions to which the conductor is subjected in service. The loading, temperature conditions and maximum allowable conductor tension are specified in State Regulations or Codes.

1.3.4 Holding strength—the test load which a fitting shall withstand for 1 min without slip of the conductor.

1.3.5 Insulator pin—rigid fitting for attaching a pin insulator to a supporting structure. Insulator pins are designated as Pattern 'A', Pattern 'B', or Pattern 'C' according to thread pattern of the head (refer to AS 1154, Part 2).

1.3.6 Insulator set fitting—any component of a suspension or tension insulator set other than an insulator unit or conductor clamp.

1.3.7 Earth conductor fitting—any component of an assembly for attaching an earth conductor to a supporting structure other than a conductor clamp.

1.3.8 Electrical control fitting—any device for controlling the electrical characteristics of an insulator. The mechanical strength of such a fitting is not necessarily related to that of the insulator.

1.3.9 Mechanical protective fitting—any auxiliary device attached to a conductor for its mechanical protection.

1.3.10 Anchor device—a fitting capable of anchoring a tension conductor.

1.4 FREEDOM FROM DEFECTS. The fittings shall be free from defects which would be likely to cause them to be unsatisfactory in service.

1.5 BENDING OF STEEL STRAPS.

1.5.1 General. All bending shall be done prior to galvanizing.

1.5.2 Hot Forming. Bending or twisting of steel straps during manufacture of components shall be by hot forming except as hereinafter specified. Throughout all bending and forming operations the material shall be maintained at a temperature between 850°C and 920°C, and on completion of the operations shall be allowed to air cool. The manufacturer shall use a suitable temperature-measuring device for the determination of the correct bending temperature.

The minimum inside radius of the bend shall be not less than the thickness of the strap being bent.

1.5.3 Cold Forming. Fabrication of components by cold forming shall only be acceptable with the written permission of the purchaser, except that rolled steel sections other than straps shall always be formed hot.

Where approval is granted, the inside radius of the bend shall be not less than 1.5 times the plate thickness.

The material to be used for the manufacture of cold-formed components shall be supplied in the normalized, annealed or hot-rolled condition and the edges of the plate shall not have been cold sheared. Whenever a component is to be formed by cold forming the edges of the strap shall be ground or machined to a radius of not less than 1.5 mm for the complete arc of the bend, and continuing for 12.0 mm beyond either end of the arc.

All components formed by cold bending shall be annealed or stress relieved prior to galvanizing.