AS 3608—1989

Australian Standard®

Insulators—Porcelain and glass, pin and shackle type—Voltages not exceeding 1000 V a.c.

[Title allocated by Defence Cataloguing Authority:
INSULATOR, PIN (Porcelain and Glass, For Overhead Power Lines, Voltages not exceeding 1000 V a.c.) NSC 5970]

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The following interests are represented on Committee EL/10:

Australian Electrical and Electronic Manufacturers Association

Australian Porcelain Insulators and Technical Ceramic Manufacturers' Association

Confederation of Australian Industry

Electrical Radio Federation of Victoria

Electricity Supply Association of Australia

Railways of Australia Committee

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PREFACE

This Standard was prepared by the Standards Australia Committee on Overhead Lines. It supersedes AS 1137.2–1981, *Porcelain and glass pin and shackle insulators for overhead power lines (for voltages not exceeding 1000 V a.c.).*

The Standard applies to porcelain and glass pin and shackle insulators for voltages up to 1000 V and deals with their dimensions, materials and mechanical performance requirements.

This Standard differs from AS 1137.2—1981 in the following ways:

(a) Although there is no IEC Standard for low voltage pin and shackle insulators, the layout has been arranged to align with IEC–based Standards. The Standard remains technically the same as AS 1137.2—1981.

(b) A ten–year validity period for mechanical type test certificates has been specified.

(c) The maximum allowable areas of single and total glaze defects has been modified.

Other Standards in this series are as listed below.

AS 1137 *Insulators*

Part 1: *Porcelain and glass insulators for overhead power lines (for voltages greater than 1000 V a.c.).*

Part 3: *Porcelain and glass indoor and outdoor stations post insulators (for voltages greater than 1000 V a.c.).*

Part 4: *Porcelain stay insulators.*

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STANDARDS AUSTRALIA

Australian Standard

Insulators—Porcelain and glass, pin and shackle type—Voltages not exceeding 1000 V a.c.

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This Standard specifies requirements for low voltage pin and shackle insulators in which the insulating material is of porcelain or annealed glass, and which are for use outdoors, at a nominal voltage not greater than 1000 V a.c. and a frequency of not greater than 100 Hz.

NOTE: Appendix A lists in formation which should be specified by the purchaser of the insulators.

1.2 REFERENCED DOCUMENTS. The following documents are referred to in this Standard.

AS
1154 Insulator and conductor fittings for overhead power lines
1154.2 Part 2: Dimensions
2947 Insulators—Porcelain and glass for overhead power lines—Voltages greater than 1000 V a.c.
2947.3 Part 3: Couplings

1.3 DEFINITIONS. For the purpose of this Standard the definitions below apply.

1.3.1 Pin insulator—insulator consisting of an insulating component intended to be mounted rigidly on a supporting structure by means of a pin passing up inside the insulator. The insulating component may consist of one or more pieces of insulating material permanently connected together with or without a permanently attached pin. The permanent pin insulator has an integral pin.

Separable pin insulators are provided with a threadform in accordance with AS 2947.3. The threadform may be integral or a metal insert cemented into the pin hole.

Unless otherwise stated, the term 'pin insulator' does not include the pin if separable.

1.3.2 Shackle insulator—an insulator consisting of one ceramic or glass part, secured by means of a steel spindle passing through it.

1.3.3 Lot—a group of insulators offered for acceptance from the same manufacturer, of the same design and manufactured under similar conditions of production.

1.3.4 Mechanical failing load—the maximum mechanical load at which failure occurs in an insulator when tested under the prescribed conditions.

1.4 MARKING. Each insulator shall be legibly and indelibly marked with the name or mark of the manufacturer and the month and year of manufacture. Markings on porcelain insulators shall be applied before firing. Markings on glass insulators shall not be impressed but may be in relief.

NOTE: Manufacturers making a statement of compliance with this Australian Standard on a product, or on packaging or promotional material related to that product, are advised to ensure that such compliance is capable of being verified.

Independent certification is available from Standards Australia under the StandardsMark Product Certification Scheme. The StandardsMark, shown below, is a (registered) certification trade mark owned by Standards Australia and granted under licence to manufacturers whose products comply with the requirements of suitable Australian Standards and who operate sound quality assurance programs to ensure consistent product quality.

Further information on product certification and the suitability of this Standard for certification is available from Standards Australia's Quality Assurance Services, 1 The Crescent, Homebush, N.S.W. 2140.

1.5 CLASSIFICATION OF TESTS. Tests shall be classified as follows:

(a) *Type tests.* Type tests are intended to verify the main characteristics of an insulator which depend mainly on its design. They are carried out once for a new design or manufacturing process of insulator and then subsequently repeated only when the design or manufacturing process is changed; when the change affects only certain characteristics, only the test(s) relevant to these characteristics need to be repeated. Type tests are usually carried out on a small number of insulators.

Valid type test certificates are those issued by a independent testing organization, confirming that these tests have been satisfactorily performed. The tests serving for the establishment of type test certificates may be carried out in a laboratory other than that of the issuing organization if a qualified witness of the latter is present.

The test certificate shall be valid for 10 years from the date of issue.

Within the above limits, type test certificates remain valid while there is no significant disparity between the results of the type tests and subsequent corresponding sample tests (see Appendix A).

Type tests shall be carried out only on insulators from a lot which has met the requirements of the relevant routine tests.

(b) *Sample tests.* Sample tests are carried out to verify the characteristics of an insulator which can vary within manufacturing process and the quality of the component materials of the insulator. Sample tests are used as acceptance tests on a sample of insulators taken at random from a lot which has met the requirements of the relevant routine tests.

(c) *Routine tests.* Routine tests are intended to eliminate defective units and are carried out during the manufacturing process. Routine tests are carried out on every insulator.