AS 1939—1990
IEC 529 (1989)

Australian Standard®

Degrees of protection provided by enclosures for electrical equipment (IP Code)

[IEC Title: Degrees of protection provided by enclosures (IP Code)]

This Australian Standard was prepared by Committee EL/26, Protective Enclosures of Electrical Equipment. It was approved on behalf of the Council of Standards Australia on 15 June 1990 and published on 15 October 1990.

The following interests are represented on Committee EL/26:

Australian Consumers Association
Australian Electrical and Electronic Manufacturers Association
Australian Institute of Petroleum
Department of Defence
Department of Public Works, N.S.W.
Electrical Apparatus Approvals Authorities
Electrical Testing Laboratories
Electricity Supply Association of Australia

Additional interests participating in preparation of Standard:

Other specific equipment Committees

This Standard was issued in draft form for comment as DR 88097.

AS 1939—1990

Australian Standard®

Degrees of protection provided by enclosures for electrical equipment (IP Code)

First published as AS C302—1965.
Revised and redesignated AS 1939—1976
Second edition 1981.
Third edition 1986.
Fourth edition 1990.

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140
ISBN 0 7262 6415 6

PREFACE

This Standard was prepared by the Standards Australia Committee on Protective Enclosures of Electrical Equipment to supersede AS 1939—1986, *Classification of degrees of protection provided by enclosures for electrical equipment*. It is identical with and has been reproduced from IEC 529 (1989), *Degrees of protection provided by enclosures (IP Code)*.

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(a) Copyright is vested in Standards Australia.

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This edition retains the basic principle of the two-numeral code. In general, equipment complying with the 1986 edition for a particular IP code would comply with this edition for the same IP code.

This edition differs considerably from the 1986 edition. In particular, the previous second characteristic numeral 6D, Protected against driving rain, has been discarded, and provision is made for the IP Code to be optionally extended by an additional letter A, B, C, or D (after the second characteristic numeral) where the protection of persons against access to hazardous parts is higher than that indicated by the first characteristic numeral, or where the first characteristic numeral is unspecified. Details of differences between this edition and the 1986 edition are given in Australian Appendix A.

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

For the purposes of this Australian Standard, the IEC text should be modified as follows:

(i) Substitute a full point for a comma as a decimal marker.

(ii) In the footnote (page 16) to Clause 8 and in Annex B, substitute the ‘Executive Officer of Standards Australia Committee EL/26’ for the ‘Secretariat of Technical Committee No. 70’.

(iii) Replace references to other publications by references to Australian Standards as follows:

Reference to International Standard		*Australian Standard*	
IEC		AS	
50	International Electrotechnical Vocabulary (IEV)	1852	International electrotechnical vocabulary
50(826)	Chapter 826: Electrical installations of buildings	1852(826)	Electrical installations of buildings
68	Environmental testing	1099	Base environmental testing procedures for electrotechnology
68-1	Part 1: General and guidance	1099.1	Part 1: General
71	Insulation co-ordination	1824	Insulation co-ordination (phase-to-earth and phase-to-phase, above 1 kV)
71-2	Part 2: Application guide	1824.2	Part 2: Application guide
536	Classification of electrical and electronic equipment with regard to protection against electric shock		(no equivalent)

For first characteristic numerals 5 and 6 relating to the ingress of dust, it should be noted that compliance is also required with all lower degrees of protection (first numerals 4, 3, 2, 1). While this may not be clear from Tables II and VII, it is specifically mentioned in Clause 5 (Paragraph 3).

Attention is drawn to the publication of two Supplements to this Standard, AS 1939 Supplements 1 and 2, being A3-size wall charts. *Wall chart 1* displays in text and diagrams the dual protection indicated by first characteristic numerals and the protection against ingress of water indicated by second characteristic numerals. *Wall chart 2* displays the various combinations of first characteristic numeral and additional letter; it also depicts basic details of access and object probes. Wall charts are intended as aids to the reading of this Standard.

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STANDARDS AUSTRALIA

Australian Standard
Degrees of protection provided by enclosures for electrical equipment (IP Code)

1. **Scope**

This standard applies to the classification of degrees of protection provided by enclosures for electrical equipment with a rated voltage not exceeding 72,5 kV.

2. **Object**

The object of this standard is to give:

(a) *Definitions* for degrees of protection provided by enclosures of electrical equipment as regards:

(1) protection of persons against access to hazardous parts inside the enclosure;

(2) protection of the equipment inside the enclosure against ingress of solid foreign objects;

(3) protection of the equipment inside the enclosure against harmful effects due to the ingress of water.

(b) *Designations* for these degrees of protection.

(c) *Requirements* for each designation.

(d) Tests to be performed to verify that the enclosure meets the requirements of this standard.

It will remain the responsibility of individual Technical Committees to decide on the extent and manner in which the classification is used in their standards and to define "enclosure" as it applies to their equipment. However, it is recommended that for a given classification the tests do not differ from those specified in this standard. If necessary, complementary requirements may be included in the relevant product standard. A guide for the details to be specified in relevant product standards is given in Annex B.

For a particular type of equipment, a Technical Committee may specify different requirements provided that at least the same level of safety is ensured.

This standard deals only with enclosures that are in all other respects suitable for their intended use as specified in the relevant product standard and which from the point of view of materials and workmanship ensure that the claimed degrees of protection are maintained under the normal conditions of use.

This standard is also applicable to empty enclosures provided that the general test requirements are met and that the selected degree of protection is suitable for the type of equipment.

Measures to protect both the enclosure and the equipment inside the enclosure against external influences or conditions such as

– mechanical impacts
– corrosion
– corrosive solvents (e.g. cutting liquids)
– fungus
– vermin
– solar radiation
– icing
– moisture (e.g. produced by condensation)
– explosive atmospheres

and the protection against contact with hazardous moving parts external to the enclosure (such as fans),

are matters for the relevant product standard.

Barriers external to the enclosure and not attached to it and obstacles which have been provided solely for the safety of personnel are not considered as a part of the enclosure and are not dealt with in this standard.

3. **Definitions**

For the purpose of this standard, the following definitions apply:

3.1 *Enclosure*

A part providing protection of equipment against certain external influences and, in any direction, protection against direct contact (IEV 826-03-12)*.

* IEC 50(826).