

Australian Standard™

**Degrees of protection provided by
enclosures (IP Code)**

This Australian Standard was prepared by Committee EL-026, Protective Enclosures and Environmental Testing for Electrical/Electronic Equipment. It was approved on behalf of the Council of Standards Australia on 14 November 2003 and published on 27 January 2004.

The following are represented on Committee EL-026:

Australian Chamber of Commerce and Industry
Australian Electrical and Electronic Manufacturer's Association
Electrical Compliance Testing Association
Electrical Regulatory Authorities Council
Electricity Supply Association of Australia
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Australian Standard™

Degrees of protection provided by enclosures (IP Code)

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PREFACE

This Standard was prepared by the Standards Australia Committee EL-026, Protective Enclosures and Environmental Testing for Electrical/Electronic Equipment, to supersede AS 1939—1990 on publication.

The objective of this Standard is to give definitions for degrees of protection provided by enclosures of electrical equipment, with regard to protection of persons against access to hazardous parts inside the enclosure and protection of the equipment inside the enclosure against ingress of solid foreign objects and harmful effects due to the ingress of water. It also provides tests to verify that the enclosure meets the requirements of this Standard.

This Standard has been reproduced from IEC 60529 Ed 2.1:2001, *Degrees of protection provided by enclosures (IP Code)*.

Variations to IEC 60529 Ed 2.1:2001 are indicated at the appropriate places throughout this standard. Strikethrough (~~example~~) identifies IEC text, tables and figures which, for the purposes of this Australian Standard, are deleted. Where text, tables or figures are added, each is set in its proper place and identified by shading (example).

Minor errors in the IEC text have been corrected and other editorial changes have been made as indicated below:

- (a) Clause 5.2, 3rd paragraph, 3rd line—Full stop removed after the word ‘opening’.
- (b) Table 3, heading of first column—Changed to read ‘Second characteristic numeral’.
- (c) Table 5, 2nd column in rows for first characteristic numerals 5 and 6—The ‘0’ after the ‘mm’ changed to \varnothing for diameter.
- (d) Informative note added to Clause 14.2.4(a) advising that the hand held test device may be used as allowed in 14.2.3(a).
- (e) Text under Figure 5—Third line changed to read ‘2 inner circles of 12 holes ...’.
- (f) Title for Figure 5—For consistency with all other figure titles, changed to read ‘Hand-held test device to verify ...’.

The above changes have been submitted to IEC TC 70 for consideration.

As this Standard is reproduced from an International Standard, the following applies:

- (i) Its number does not appear on each page of text and its identity is shown only on the cover and title page.
- (ii) In the source text ‘this international standard’ should read ‘this Australian Standard’.
- (iii) A full point should be substituted for a comma when referring to a decimal marker.
- (iv) Any French text on figures should be ignored.

The terms ‘normative’ and ‘informative’ are used to define the application of the annex to which they apply. A normative annex is an integral part of a standard, whereas an informative annex is only for information and guidance.

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INTRODUCTION

This standard describes a system for classifying the degrees of protection provided by the enclosures of electrical equipment. Whilst this system is suitable for use with most types of electrical equipment, it should not be assumed that all the listed degrees of protection are applicable to a particular type of equipment. The manufacturer of the equipment should be consulted to determine the degrees of protection available and the parts of equipment to which the stated degree of protection applies.

The adoption of this classification system, wherever possible, will promote uniformity in methods of describing the protection provided by the enclosure and in the tests to prove the various degrees of protection. It should also reduce the number of types of test devices necessary to test a wide range of products.

This second edition of IEC 60529 takes account of experiences with the first edition, and clarifies the requirements. It provides for an optional extension of the IP Code by an additional letter A, B, C, or D if the actual protection of persons against access to hazardous parts is higher than that indicated by the first characteristic numeral.

In general, enclosures with an IP coding to the first edition would be eligible for the same code according to this edition.

STANDARDS AUSTRALIA

Australian Standard

Degrees of protection provided by enclosures (IP Code)

Any table, figure or text of the international standard that is struck through is not part of this standard. Any Australian table, figure or text that is added is part of this standard and is identified by shading.

1 Scope and object

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.

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 to be protected.

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

- mechanical impacts
- corrosion
- corrosive solvents (for example, cutting liquids)



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