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*Degrees of Protection Provided by Enclosures (IP Code)
(Identical National Adoption)*

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Foreword for U.S. Adoption

This American National Standard is an adoption of IEC 60529, Edition 2.0, *Degrees of protection provided by enclosures (IP Code)* and was developed and approved in accordance with procedures set forth by the American National Standards Institute. This Standard contains all the original text from IEC 60529, Edition 2.0.

Suggestions for the improvement of this Standard are welcome and should be submitted to the Secretariat of Accredited Standards Committee W1 as follows:

NEMA Technical Operations Department
National Electrical Manufacturers Association
1300 North 17th Street, Suite 900
Rosslyn, VA 22209

This Standard was processed and approved by a Canvass Committee. Committee approval does not necessarily imply that all Committee Members voted for its approval.

CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
INTRODUCTION TO AMENDMENT 2	8
1 Scope and object.....	9
2 Normative references	10
3 Definitions	10
4 Designations	12
4.1 Arrangement of the IP Code	12
4.2 Elements of the IP Code and their meanings	12
4.3 Examples for the use of letters in the IP Code	13
5 Degrees of protection against access to hazardous parts and against solid foreign objects indicated by the first characteristic numeral.....	14
5.1 Protection against access to hazardous parts.....	14
5.2 Protection against solid foreign objects	15
6 Degrees of protection against ingress of water indicated by the second characteristic numeral	16
7 Degrees of protection against access to hazardous parts indicated by the additional letter	18
8 Supplementary letters.....	19
9 Examples of designations with the IP Code	20
9.1 IP Code not using optional letters:.....	20
9.2 IP Code using optional letters:.....	20
10 Marking	21
11 General requirements for tests	21
11.1 Atmospheric conditions for water or dust tests.....	21
11.2 Test samples.....	21
11.3 Application of test requirements and interpretation of test results	22
11.4 Combination of test conditions for the first characteristic numeral.....	22
11.5 Empty enclosures.....	22
12 Tests for protection against access to hazardous parts indicated by the first characteristic numeral	23
12.1 Access probes.....	23
12.2 Test conditions.....	23
12.3 Acceptance conditions.....	24
12.3.1 For low-voltage equipment (rated voltages not exceeding 1 000 V a.c. and 1 500 V d.c.)	24
12.3.2 For high-voltage equipment (rated voltages exceeding 1 000 V a.c. and 1 500 V d.c.).....	25
12.3.3 For equipment with hazardous mechanical parts.....	25
13 Tests for protection against solid foreign objects indicated by the first characteristic numeral	25
13.1 Test means	25

13.2	Test conditions for first characteristic numerals 1, 2, 3, 4	26
13.3	Acceptance conditions for first characteristic numerals 1, 2, 3, 4	26
13.4	Dust test for first characteristic numerals 5 and 6	26
13.5	Special conditions for first characteristic numeral 5	27
13.5.1	Test conditions for first characteristic numeral 5	27
13.5.2	Acceptance conditions for first characteristic numeral 5	27
13.6	Special conditions for first characteristic numeral 6	27
13.6.1	Test conditions for first characteristic numeral 6	27
13.6.2	Acceptance conditions for first characteristic numeral 6	27
14	Tests for protection against water indicated by the second characteristic numeral	27
14.1	Test means	27
14.2	Test conditions	28
14.2.1	Test for second characteristic numeral 1 with the drip box	29
14.2.2	Test for second characteristic numeral 2 with the drip box	29
14.2.3	Test for second characteristic numeral 3 with oscillating tube or spray nozzle	30
14.2.4	Test for second characteristic numeral 4 with oscillating tube or spray nozzle	30
14.2.5	Test for second characteristic numeral 5 with the 6,3 mm nozzle	31
14.2.6	Test for second characteristic numeral 6 with the 12,5 mm nozzle	31
14.2.7	Test for second characteristic numeral 7: temporary immersion between 0,15 m and 1 m	32
14.2.8	Test for second characteristic numeral 8: continuous immersion subject to agreement	32
14.2.9	Test for second characteristic numeral 9 with a spray nozzle	32
14.3	Acceptance conditions	33
15	Tests for protection against access to hazardous parts indicated by the additional letter	33
15.1	Access probes	33
15.2	Test conditions	33
15.3	Acceptance conditions	33
Annex A (informative) Examples of IP coding for the verification of protection of low-voltage equipment against access to hazardous parts		44
Annex B (informative) Summary of responsibilities of relevant technical committees		50
Bibliography		51
Figure 1 – Jointed test finger		35
Figure 2 – Test device to verify protection against dust (dust chamber)		36
Figure 3 – Test device to verify protection against vertically falling water drops (drip box)		37
Figure 4 – Test device to verify protection against spraying and splashing water; second characteristic numerals 3 and 4 (oscillating tube)		38
Figure 5 – Hand-held device to verify protection against spraying and splashing water; second characteristic numerals 3 and 4 (spray nozzle)		39

Figure 6 – Test device to verify protection against water jets (hose nozzle) 39

Figure 7 – Fan jet nozzle dimensions 39

Figure 8 – Fan jet nozzle resulting dimensions of spraying hole for checking purpose 39

Figure 9 – Fan jet nozzle examples..... 40

Figure 10 – Set-up for measuring the impact force of the water jet for determining the protection against high-pressure and temperature water jet, degree of protection against ingress of water IP X9..... 41

Figure 11 – Impact force distribution 41

Figure 12 – Test device to verify protection against high pressure and temperature water jet for small enclosures 42

Table 1 – Degrees of protection against access to hazardous parts indicated by the first characteristic numeral..... 15

Table 2 – Degrees of protection against solid foreign objects indicated by the first characteristic numeral..... 16

Table 3 – Degrees of protection against water indicated by the second characteristic numeral..... 18

Table 4 – Degrees of protection against access to hazardous parts indicated by the additional letter 19

Table 5 – Test conditions for degrees of protection indicated by the first characteristic numeral..... 22

Table 6 – Access probes for the tests for protection of persons against access to hazardous parts 23

Table 7 – Test means for the tests for protection against solid foreign objects 25

Table 8 – Test means and main test conditions for the tests for protection against water 28

Table 9 – Total water flow rate q_V under IPX3 and IPX4 test conditions – Mean flow rate per hole $q_{Vl} = 0,07$ l/min..... 31

IP Codes of examples in Annex A 49

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**DEGREES OF PROTECTION PROVIDED
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This Consolidated version of IEC 60529 bears the edition number 2.0.

It consists of the second edition (1989) [documents 70(CO)13 + 70(CO)15 and 70(CO)16 + 70(CO)17], its amendment 1 (1999) [documents 70/91/FDIS and 70/92/RVD], its corrigendum 1 (2003), its corrigendum 2 (2007), its corrigendum 3 (2009), its amendment 2 [documents 70/122/FDIS and 70/123/RVD] its corrigendum 1 (2013), its corrigendum 2 (2015) and its corrigendum 1 (2019). The technical content is identical to the base edition and its amendments.

This Final version does not show where the technical content is modified by amendments 1 and 2. A separate Redline version with all changes highlighted is available.

This publication has been prepared for user convenience.

International Standard IEC 60529 has been prepared by technical committee 70: Degrees of protection by enclosures.

Annexes A and B are for information only.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed
- withdrawn
- replaced by a revised edition
- amended

The contents of the corrigenda of October 2013, May 2015, and January 2019 have been included in this copy.

IMPORTANT – The “colour inside” logo on the cover page of this publication indicates that it contains colors that are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.

INTRODUCTION

This Standard describes a system for classifying the degrees of protection provided by the enclosures of electrical equipment. While 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.

INTRODUCTION TO AMENDMENT 2

This Amendment 2 introduces a new degree of protection IP X9 whereas no modifications of the existing degrees of protection are made.

Thus neither additional tests nor modifications of the existing certificates should be requested in case of enclosures providing a different IP code.

DEGREES OF PROTECTION PROVIDED BY ENCLOSURES (IP Code)

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)
- fungus
- vermin
- solar radiation
- icing
- moisture (for example, produced by condensation)
- explosive atmospheres

The protection against contact with hazardous moving parts external to the enclosure (such as fans) matters for the relevant product Standard to be protected.

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.