NEMA BI 50014-2024

Degrees of Protection Provided by Enclosures (IP Code)

Published by:

National Electrical Manufacturers Association
1300 North 17th Street, Suite 900
Rosslyn, Virginia 22209

www.nema.org

NOTICE AND DISCLAIMER

The information in this publication was considered technically sound by the consensus of persons engaged in the development and approval of the document at the time it was developed. Consensus does not necessarily mean that there is unanimous agreement among every person participating in the development of this document.

The National Electrical Manufacturers Association (NEMA) standards and guideline publications, of which the document contained herein is one, are developed through a voluntary consensus standards development process. This process brings together volunteers and/or seeks out the views of persons who have an interest in the topic covered by this publication. While NEMA administers the process and establishes rules to promote fairness in the development of consensus, it does not write the document and it does not independently test, evaluate, or verify the accuracy or completeness of any information or the soundness of any judgments contained in its standards and guideline publications.

NEMA disclaims liability for any personal injury, property, or other damages of any nature whatsoever, whether special, indirect, consequential, or compensatory, directly or indirectly resulting from the publication, use of, application, or reliance on this document. NEMA disclaims and makes no guaranty or warranty, express or implied, as to the accuracy or completeness of any information published herein, and disclaims and makes no warranty that the information in this document will fulfill any of your particular purposes or needs. NEMA does not undertake to guarantee the performance of any individual manufacturer or seller's products or services by virtue of this standard or guide.

In publishing and making this document available, NEMA is not undertaking to render professional or other services for or on behalf of any person or entity, nor is NEMA undertaking to perform any duty owed by any person or entity to someone else. Anyone using this document should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstances. Information and other standards on the topic covered by this publication may be available from other sources, which the user may wish to consult for additional views or information not covered by this publication.

NEMA has no power, nor does it undertake to police or enforce compliance with the contents of this document. NEMA does not certify, test, or inspect products, designs, or installations for safety or health purposes. Any certification or other statement of compliance with any health or safety–related information in this document shall not be attributable to NEMA and is solely the responsibility of the certifier or maker of the statement.

CONTENTS

Page

Tables

<This page is intentionally left blank.>

1 General

1.1 What is ANSI/IEC 60529-2020 and What Does It Cover?

ANSI/IEC 60529-2020 is an unmodified U.S. adoption of a standard developed through the International Electrotechnical Commission (IEC) that describes a system for classifying the degrees of protection provided by an enclosure. As used in ANSI/IEC 60529-2020, an enclosure is "a part providing protection of equipment against certain external influences and in any direction protection against direct contact." As such, ANSI/IEC 60529-2020 may be applied to products other than just metal or polymeric enclosures for electrical equipment for particular environmental conditions as covered by NEMA 10250-2023. For example, an individual circuit breaker, switch, contactor, etc., may have an ANSI/IEC 60529-2020 IP rating. Until it is enclosed in a metal or polymeric enclosure, NEMA 10250-2023 would not apply.

1.2 What is Not Covered by ANSI/IEC 60529-2020?

ANSI/IEC 60529-2020 is **not** a "product standard" and does not cover enclosure requirements **other than** the "degree of protection" provided. For instance, ANSI/IEC 60529-2020 does not specify the corrosion protection and other environmental operating requirements and tests defined in NEMA 10250-2023.

1.3 What Does "Degree of Protection" Mean in ANSI/IEC 60529-2020?

"Degree of protection" is a term used in the standard to describe the following:

- the protection of persons against access to hazardous parts inside the enclosure;
- the protection of the equipment inside the enclosure against ingress of solid foreign objects;
- the protection of the equipment inside the enclosure against harmful effects due to the ingress of water.

2 IP Code

2.1 What is an IP Code?

The IP Code is a designation that indicates the level, or amount, of the protection. The IP Code designation consists of the letters IP (International Protection) followed by two numerals.

2.2 What Does the First Numeral of an IP Code Indicate?

The first characteristic numeral indicates the degree of protection provided by the enclosure with respect to persons having access to hazardous parts and with respect to solid foreign objects entering the enclosure. The first number specifies the following as described in Table 1: