

Nonmetallic Outlet Boxes, Device Boxes, Covers, and Box Supports

Published by

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

www.nema.org

© 2020 National Electrical Manufacturers Association. All rights including translation into other languages, reserved under the Universal Copyright Convention, the Berne Convention or the Protection of Literary and Artistic Works, and the International and Pan American Copyright Conventions.

NOTICE AND DISCLAIMER

The information in this publication was considered technically sound by a consensus among persons engaged in its development at the time it was approved. Consensus does not necessarily mean there was unanimous agreement among every person participating in the development process.

The National Electrical Manufacturers Association (NEMA) Standards and guideline publications, of which the document herein is one, are developed through a voluntary 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. Although NEMA administers the process and establishes rules to promote fairness in the development of consensus, it does not write the documents, nor does it 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, 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 particular purpose(s) or need(s). NEMA does not undertake to guarantee the performance of any individual manufacturer's 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 circumstance. 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

For	Foreword				
Sec	tion 1 G	eneral			
1.1	sc	OPE	1		
1.2	NORM	IATIVE REFERENCES	1		
1.3	DE	FINITIONS	1		
Sec	tion 2 G	eneral Standards			
2.1	MA	TERIAL	5		
2.2	CO	RROSION PROTECTION	5		
2.3	SCREWS		5		
	2.4.1	Cable-Size Knockouts	5		
	2.4.2	Knockouts for Conduit or Tubing	6		
	2.4.3	Clamps	6		
2.5	SU	PPORTS	6		
2.6	BOXE	ES FOR SUPPORTING EQUIPMENT OR ACCESSORIES	6		
	2.6.1	Boxes for Luminaire Support	7		
	2.6.2	Boxes for Ceiling-Suspended Fan Support	7		
2.7	DEVIC	CE BOXES	7		
2.8	ВО	XES AND MOUNTS FOR OTHER DEVICES AND ACCESSORIES	7		
2.9	BO	XES FOR HIGH- AND LOW-VOLTAGE CIRCUITS	7		
2.10) MA	RKINGS	7		
	2.10.1	General	7		
	2.10.2	Boxes for Supporting Equipment and Accessories	7		
	2.10.3	Cable Clamps	7		
2.11	I GR	OUNDING	8		
Sec	tion 3 S	PECIFIC REQUIREMENTS			
3.1	GEN	ERAL	9		
3.2	INDE	X TO FIGURES	9		

NEMA OS-2-2013 (R2020) Page ii

Tables		
1	Screws Commonly Used In Conjunction with Outlet Boxes, Device Boxes, and Cov	ers5
2	Diameter of Knockouts	6
Figures		
1	Single Gang Flush or Surface Mounted Nonmetallic Device Box	11
2	Two Gang Flush Mounted Nonmetallic Device Box	12
3	Three Gang Flush Mounted Nonmetallic Device Box	13
4	Four Gang Flush Mounted Nonmetallic Device Box	14
5	Single Gang Flush Mounted Nonmetallic Device Box with Plaster Ears	
6	Two Gang Flush Mounted Nonmetallic Device Box with Plaster Ears	16
7	Three Gang Flush Mounted Nonmetallic Device Box with Plaster Ears	17
8	Single Gang Offset Flush Mounted Nonmetallic Device Box with Plaster Ears	18
9	Nominal 3-1/4" / 3-1/2" Round or Octagonal Nonmetallic Device Box	19
10	Nominal 4" Round Or Octagonal Nonmetallic Device Box	20

11	Nominal 3-1/4" / 3-1/2" Round or Octagonal Nonmetallic Device Box with Flange	21
12	Nominal 4" Round or Octagonal Nonmetallic Device Box with Flange	22
13	Nominal 4" Square Nonmetallic Device Box	23
14	Flat Blank Nonmetallic Cover for Nominal 3-1/4" And 3-1/2" Round or Octagonal Outlet Box	24
15	Flat Blank Nonmetallic Cover for Nominal 3-1/4", 3-1/2", and 4" Round or Octagonal Outlet Box	: 25
16	Raised Blank or Cord Drop Nonmetallic Cover for 3-1/4", 3-1/2", and 4" Round or Octagona Outlet Box	
17	Flat Blank Nonmetallic Cover for 4" Square Outlet Box	27
18	Nonmetallic Blank or Pendant Cover for Surface Mounted Device Boxes	28
19	Nonmetallic Duplex Receptacle Cover for Surface Mounted Device Boxes	29
20	Nonmetallic Single Receptacle Cover for Surface Mounted Device Boxes	30
21	Nonmetallic Toggle Switch Cover for Surface Mounted Device Boxes	31
22	Raised Fixture Attachment Nonmetallic Cover for 4" Round or Octagonal Outlet Box	32
23	Raised Fixture Attachment Nonmetallic Cover for 4" Square Outlet Box	33
24	Raised Single-Device Nonmetallic Cover for 4" Square Outlet Box	34
25	Raised Two-Device Nonmetallic Cover for 4" Square Outlet Box	35
26	Alternate Cover Mounting Hole(s), Slot(s) Configurations	36
27	Alternate Ear Configurations	37
28	Alternate Knockout Configurations	38

Note: This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at NEMA or ANSI.

FOREWORD

The purpose of this standards publication is to provide a guide for the types and sizes of nonmetallic boxes and supports that are in general use. The standards present dimensional data needed for the safety and convenience of interchangeability with associated equipment. All items when properly installed and properly used contribute to safety.

Properly manufactured boxes and covers are, however, only one factor in minimizing the hazards, which may be associated with the use of electricity. The reduction of hazards involves the joint efforts of various equipment manufacturers, the system designer, the installer, and the user. Information is provided herein to assist users and others in the proper selection of boxes and covers.

The manufacturer has limited or no control over the following factors, which are vital to a safe installation:

- a. Environmental conditions
- b. System design
- c. Equipment selection and application
- d. Installation
- e. Operating practices
- f. Maintenance

This publication is not intended to instruct the user of the boxes and covers with regard to these factors, except insofar as suitable equipment to meet needs can be recognized in this publication.

These standards are necessarily limited to defining the construction requirements for the products covered herein. The publication has been promulgated with a view towards reducing the hazard to persons and property when boxes and covers conforming to these standards are properly selected and installed in accordance with the *National Electrical Code*[®].

NFPA 70®, National Electrical Code®, and NEC are registered trademarks of the National Fire Protection Association, Quincy, MA.

This standards publication has been reviewed with input obtained from independent testing laboratories and major consumer representatives.

This is a reaffirmation of NEMA OS 2 - 2013. OS 2-2013 revises and supersedes OS 2-2008 and its revision OS 2-2008 (R2010).

User needs have been considered throughout the development of this publication. The standard is reviewed periodically by NEMA Outlet and Switch Box Section so that it will be kept up to date with advancing technology. Proposed or recommended revisions should be submitted to.

Technical Director, Operations National Electrical Manufacturers Association 1300 North 17th Street, Suite 900 Rosslyn, Virginia 22209 This Standards publication was developed by the NEMA Outlet and Switch Box Section. Section approval of the Standard does not necessarily imply that all section members voted for its approval or participated in its development. At the time it was approved, the Outlet and Switch Box Section was composed of the following members:

ABB, Inc.
Allied Moulded Products, Inc.
Arlington Industries, Inc.
Eaton
Emerson

Hotwire, LLC Hubbell Incorporated IPEX USA, LLC

Legrand, North America Madison Electric Products

nVent

Sigma Electric Manufacturing Corporation

Titan3 Technology LLC

Memphis, TN Bryan, OH Scranton, PA Cleveland, OH Saint Louis, MO Virginia Beach, VA

Shelton, CT Pineville, NC West Hartford, CT Bedford Heights, OH

St. Louis Park, MN

Garner, NC Tempe, AZ

NEMA OS-2-2013 (R2020 Page vi

< This page is left blank intentionally. >

Section 1 General

1.1 SCOPE

This standards publication covers those general-purpose nonmetallic outlet boxes, device boxes, covers, and supports that are widely used by the consumer. These items (covered by UL 514C) are designed to facilitate the pulling of wires, to protect and facilitate wiring splices and taps, to provide a means of mounting and protecting wiring devices, and to provide a connection for nonmetallic sheathed cable, nonmetallic tubing (loom), rigid nonmetallic conduit, and electrical nonmetallic tubing or other approved raceways.

This standard provides useful guidance for design and performance of certain aspects of nonmetallic floor boxes.

Excluded from this standards publication are the following: "conduit bodies" and similar types of boxes; cabinets or cutout boxes; floor boxes; flush device cover plates; boxes, plates, and covers designed for use with surface metal or surface nonmetallic raceway systems only; and boxes larger than 1650 cm³ (100 cu. in.) in volume, except multiple gang device boxes.