

#### **NEMA Standards Publication TC 3-2021**

Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing

Published by:

National Electrical Manufacturers Association 1300 North 17<sup>th</sup> Street, Suite 900 Rosslyn, Virginia 22209

www.nema.org

© 2021 National Electrical Manufacturers Association. All rights, including translation into other languages, reserved under the Universal Copyright Convention, the Berne Convention for 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 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, expressed 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.

#### Foreword

In the preparation of this Standards publication, input of users and other interested parties has been sought and evaluated. Inquiries, comments, and proposed or recommended revisions should be submitted to the concerned NEMA product subdivision by contacting:

NEMA Technical Operations Department National Electrical Manufacturers Association 1300 North 17<sup>th</sup> Street, Suite 900 Rosslyn, Virginia 22209

This Standards publication was approved by the Polymer Raceway Products Section. Approval does not necessarily imply that all Members of the Section voted for its approval. At the time of publication, the Section had the following Members:

```
ABB, Inc. — www.abb.com — Memphis, TN

Anamet Electrical, Inc. — www.anacondasealtite.com — Mattoon, IL

Atkore International — www.atkore.com — Harvey, IL

Champion Fiberglass, Inc. — www.championfiberglass.com — Spring, TX

Electri-Flex Company — www.electriflex.com — Roselle, IL

FRE Composites Group — www.frecomposites.com — Saint-Andre-d'Argenteuil, QC, Canada

Hubbell Incorporated — www.hubbell.com — Shelton, CT

IPEX USA LLC — www.ipexamerica.com — Oakville, ON, Canada

Legrand North America — www.legrand.us — West Hartford, CT

Panduit Corporation — www.panduit.com — Tinley Park, IL

Phoenix Contact — www.phoenixcontact.com — Middletown, PA

Southern Pipe, Inc. — www.southern-pipe.com — New London, NC

Southwire Corporation — www.southwire.com — Carrollton, GA

Underground Devices, Inc. — www.udevices.com — Northbrook, IL

United Fiberglass of America, Inc. — www.unitedfiberglass.com — Springfield, OH
```

## **CONTENTS**

Foreword		i
Section 1	1 General	
1.1	Scope	1
1.2	Referenced Standards	1
Section 2	2 Definitions	3
2.1	General	3
2.2	Definitions	3
Section 3	3 General Requirements	4
3.1	Materials	4
3.2	Dimensions	
	3.2.1 Fittings	
	3.2.2 Compression-Formed Couplings	
2.2	3.2.3 Elbows	
3.3 3.4	Depth of Penetration Threads	
	4 Performance Requirements	
4.1	Qualification Tests	
	4.1.2 Axial Pull Test on Joints	
4.2	Quality Control Test	
	4.2.1 Workmanship	
	4.2.2 Dimensions	
Section 5	5 Test Methods	13
5.1	Conditioning, Test Conditions, and Sampling	13
	5.1.1 Conditioning Test Specimens	
	5.1.2 Sampling	13
5.2	Dimensions	
5.3	Threads	
	5.3.1 Gauging External Tapered Threads	
	5.3.2 Gauging Internal Tapered Threads	
	5.3.4 Gauging Chamlered, Countersunk, or Recessed Threads	
5.4	Bending Test	
5.5	Axial Pull Test on Joints	
5.6	Retests	
Section 6	6 Markings	
6.1	Markings	
***	6.1.1 General	
	6.1.2 Long Elbows and Other Bends	
	6.1.3 Short Elbows and Other Bends	17
	Figures	
Eiguro 1	Molded Fitting Dimensions	e
Figure 1 Figure 2	Compression-Formed Couplings	
Figure 3	Elbows	
Figure 4	Bending Test Arrangement	

# **Tables**

Table 1	Sizes and Dimensions of PVC Fittings	5
Table 2	Dimensions for External and Internal Tapered Threads	
Table 3	Dimensions for External and Internal Straight Threads	
Table 4	Dimensions for Compression-Formed EPC-40 and EPC-80 Couplings	
Table 5	Dimensions for Integral Bell EPC-40 and EPC-80 Elbows	
Table 6	Bending Load on Coupling or Fitting	
Table 7	Axial Load for Pull Test on Joints	

< This page intentionally left blank. >

# Section 1 General

### 1.1 Scope

This Standard covers polyvinyl chloride (PVC) fittings intended to be joined in the field by means of a solvent cement system to PVC rigid conduit, tubing, or other fittings, based on the outside diameters given in NEMA TC 2-2020.

Included in this publication are requirements for materials, workmanship, dimensions, physical properties, couplings, female adapters, male terminals, junction box adapters, reducers, elbows, caps, and end-bells. Methods of marking, inspection, and practices for indicating compliance with these Standards are also given. Junction boxes and access fittings are not included.

Note: The values stated in U.S. customary units are to be regarded as the Standard. Metric units are provided for information.