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Selection and Installation Guidelines - Fittings for Use with Flexible Electrical Conduit and Cable

National Electrical Manufacturers Association

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Fittings for Use with Flexible Electrical Conduit and Cable

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Foreword

The selection and installation guidelines provided herein offer practical information on correct product selection and industry recommend practices for the installation of fittings for flexible conduit or cable in accordance with the National Electrical Code®.

These guidelines have been developed by the NEMA Conduit Fittings Section, which periodically reviews them for any revisions necessary to address changing conditions, product listing and installation requirements, and technical progress. Comments for proposed revisions are welcomed and should be submitted to:

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At the time of approval, the Conduit Fittings Section of the National Electrical Manufacturers Association had the following members:

Adalet — Cleveland, OH
AFC Cable Systems, Part of Atkore International — New Bedford, MA
Arlington Industries, Inc. — Scranton, PA
Bridgeport Fittings, Inc. — Bridgeport, CT
Cooper B-Line — Highland, IL
Cooper Crouse-Hinds — Syracuse, NY
EGS Electrical Group — Rosemont, IL
Erico, Inc. — Solon, OH
Hubbell Incorporated — Shelton, CT
IPEX USA LLC — Mississauga, ON Canada
Killark Electric Manufacturing Company — St. Louis, MO
Pass & Seymour/Legrand — Syracuse, NY
Plastic Trends, Inc. — Shelby Township, MI
Producto Electric Corporation — Orangeburg, NY
Progressive Machine Die, Inc. — Walton Hills, OH
RACO, Hubbell Incorporated — South Bend, IN
Sigma Electric Manufacturing Corporation — Garner, NC
Steel Electric Products Company, Inc. — Brooklyn, NY
Thomas & Betts Corporation — Memphis, TN

Introduction

It is a common perception that in any continuous system, the joints (splices, taps, couplings, and connections) are the weakest link. In fact, specifically by design, this is not usually the case. In order to achieve this design performance, variables such as *selection, preparation*, and *assembly technique* must be considered. We know it is not practical to have a system without joints, so we strive to build in safety where these occur.

The expectations and demands on our electrical raceway systems have continued to evolve. Many metallic conduit raceway systems (conduit, fittings, and enclosures) are relied upon both to provide mechanical protection for circuit conductors and to carry potentially dangerous fault currents. Flexible metallic and nonmetallic conduit and metallic and composite cable systems have been introduced to meet ever-changing market needs. Emerging manufacturing technology and economic pressures have resulted in noticeable changes to some system components. Because of this evolution, sole reliance on the historical mechanical evaluation criteria of the system's components is of increasing concern to those charged with approving an installation. These concerns are very often evidenced through product standards development and installation code processes.

Along with evolving manufacturing technology, improved and new materials and processes are used in the manufacture of conduit and cable fittings. Considering the variety of materials, such as steel, iron, aluminum, zinc, and engineered plastics, the industry has come a long way in providing numerous options to solve an infinite number of applications. Over the years, NEMA member companies that manufacturer conduit and cable fittings have met the needs of the market with new and innovative product designs that continue to live up to higher standards demanded by the market.

These guidelines are written by the NEMA Conduit Fittings Section (5-FB). They provide installers and inspectors with an industry perspective of best practices in selecting and installing the products we manufacture. Focus is placed on important fundamentals and recent changes to codes, product standards and latest technologies. The member companies of the NEMA Conduit Fittings Section promote the selection and installation of listed conduit and cable fittings, listed conduit and cable, and associated supports. Listing of electrical system components qualifies them to minimum performance requirements and provides for ongoing conformity surveillance. Listed conduit and cable fittings can be recognized by the trademark of the qualified electrical testing laboratory on the part or its smallest unit container.

It is our objective to maintain a closer liaison with the installers of our products and the professional electrical inspector. Through this liaison, we intend to provide uniform education and understanding as to the intended use and application of our products and to develop an alliance founded in trust that will enable us together to address and resolve the concerns and challenges we each face. . Thousands of downloads of earlier editions of this document and its regular use as a reference in codes and standards forums gives us confidence that we are meeting this objective. This and other valuable NEMA documents are available for downloading free of charge at www.nema.org.

Note: All references to the *National Electrical Code*® are to the 2011 Edition.