





POWER & COMMUNICATIONS



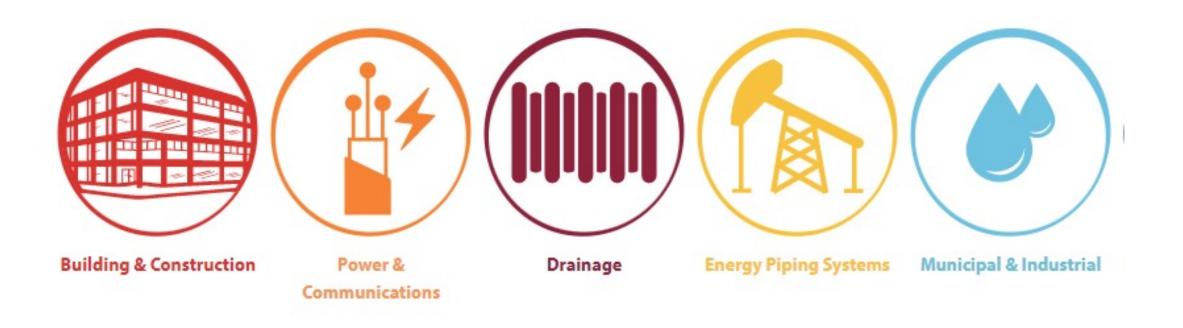
## **Plastics Pipe Institute**

PPI is the major North American manufacturers trade association of advocacy and education for plastics use in pipe, conduit and infrastructure solutions.

The **mission** of the Plastics Pipe Institute is to advance the acceptance and use of plastic pipe systems through research, education, technical expertise and advocacy.



#### **Plastics Pipe Institute**





## **Power & Communications Division**



Power & Communications **Mission**: To expand knowledge of the uses and benefits of HDPE conduit for Power and Communications applications.

Focus is on HDPE conduit for outside plant applications: aerial and buried power transmission, broadband, FTTH, CaTV, SCADA, ITS, etc.



## Discussion

## Strategic Objective

- Aim to deliver what the industry needs
- Answer What does industry need?





Power & Communications

## Who Are We? What do we do?





# **Manufacturer Supported:**



- HDPE Conduit
- Equipment
- Materials

Power & Communications





## **PCD** Purpose

#### Support the industry to use HDPE Conduit correctly

- Industry Outreach
- Codes & Standards
- Research & Development
- Tools
- Publications

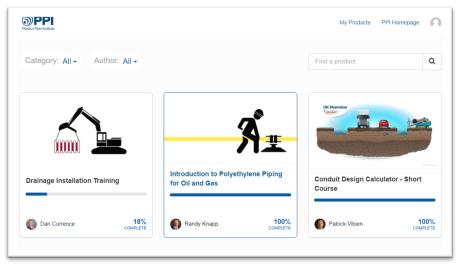


# **Industry Outreach**

# Industry Outreach and Support

- Updated Website FAQ Page PCD FAQs (plasticpipe.org)
  - Answers common questions
  - Directs you to resources
  - Submit questions directly to PPI
  - Access subject matter experts
- Online Learning
  - PPI eLearn<sup>™</sup> Platform (https://elearn.plasticpipe.org/)
  - How to use the mini-HDD Design Calculator
- Webinars

Plastics Pipe Institute Divisions About PCD About HDPE Conduit Publications Case Studies	Education Industry Links & News
regulations.	
General	Submit an FAO Ouest
What does the PPI Power & Communications Division do?	Sublint un rAQ Quest
Where can I find terminology specific to duct and conduit?	
What is the voltage of mainline power distribution and can HDPE conduit handle that voltage?	
Conduit Sizing	Don't find
What size conduit do I need?	the FAQ
Why are there many sizing systems for conduit?	the LAG
What do SDR and SIDR stand for?	you're
Need help sizing the wall thickness for conduit in mini-HDD installations?	
How many power cables can be placed into a conduit?	looking for?
What is the maximum number of HDPE conduit innerducts in a casing?	Submit an FAQ question
Conduit Storage	
How long can conduit be stored outdoors?	
Can conduit stored outdoors for more than one year still be used?	Please enter your question below.
Conduit Installation	
How do I avoid overstretching the conduit during installation?	Type here
What do I do about HDPE Conduit Memory, Ovality and Coil-set?	
What is the temperature range over which HDPE conduit can be installed?	
What is the impact of temperature on conduit length (thermal expansion/contraction)?	
Product Offering	
What colors are available?	
Can conduit be ordered with more than one conduit and/or color per reel?	

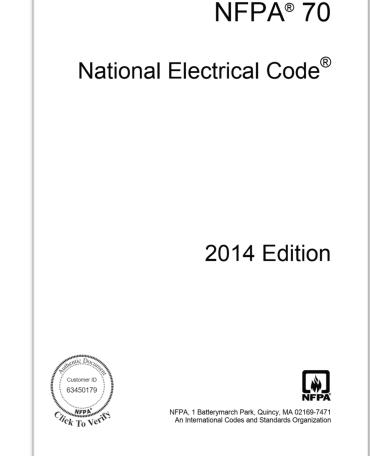




## Codes & Standards

#### Active in the Codes

- 2023 NEC Code Change
  - Prohibits Heat and Butt fusion
  - PPI working to reject change





## Code & Standards

#### Simplifying the landscape

- Aligning Standards
  - Materials, dimensions and performance
  - UL 651A & UL 1990 Under revision
  - NEMA TC-7 & TCB-4 Revised 2021
  - ASTM F2160 & D3485 Under revision •
  - CSA C22.2 No. 327
- TN-50 Guide to Specifying HDPE Conduit
- MS-5 Model Specification for HDPE Solid Wall Conduit

#### Designation: F2160 - 16

#### Standard Specification for Solid Wall High Density Polyethylene (HDPE) Conduit Based on Controlled Outside Diameter (OD)<sup>1</sup>

This standard is issued under the fixed designation F2160; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproxed, a superscript epilotic (e) indicates an editorial change since the last revision or reapproxel.

#### 1. Scope

1.1 This specification covers material, dimensional, workmanship and performance requirements for polyethylene conduit, duct and innerduct manufactured for use in a nonpressure applications for the protection of fiber optic and power cables. Applications include telecom, SCADA command and control, highway lighting, ITS (Intelligent Transportation Systems) and Underground Utilities with PE conduit installed using methods such as Horizontal Directional Drilling (HDD), plowing and open trench.

1.2 HDPE conduit meeting the requirements of this standard shall be made as OD or ID controlled solid wall, with or without internal or external ribs in IPS types SDR 9, SDR 11, SDR 13.5, DR 15.5, Schedule 40, Schedule 80 and "Truesized" and SIDR dimensions. The internal or external surface may contain a coextruded layer provided the finished conduit meets the product requirements of this specification.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical versions to SI units that are provided for information only and are not considered standard. 1.4 The following precautionary caveat pertains only to the

Characteristics of Plastic Pipe by Parallel-Plate Loading D2444 Test Method for Determination of the Impact Resis-tance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight) D2837 Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products D3350 Specification for Polyethylene Plastics Pipe and Fit test method portion, Section 6, of this specification, This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user

3. Terminolog

Gradient Technique

Ethylene Plastics

tings Materials D4883 Test Method for Density of Polyethylene by the

D638 Test Method for Tensile Properties of Plastics D790 Test Methods for Flexural Properties of Unreinforce

and Reinforced Plastics and Electrical Insulating Mat-

D792 Test Methods for Density and Specific Gravity (Rela

Diversity of Plastics by Displacement D1238 Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer

D1505 Test Method for Density of Plastics by the Density

D1600 Terminology for Abbreviated Terms Relating to Plas

D1693 Test Method for Environmental Stress-Cracking of

D2122 Test Method for Determining Dimensions of The

moplastic Pipe and Fittings D2412 Test Method for Determination of External Loading

Ultrasound Technique F412 Terminology Relating to Plastic Piping Systems F1473 Test Method for Notch Tensile Test to Measure th Resistance to Slow Crack Growth of Polyethylene Pipes and Resins

#### 2. Referenced Documents 2.1 ASTM Standards;<sup>2</sup>

ments prior to use.

#### D618 Practice for Conditioning Plastics for Testing

of this standard to establish appropriate safety and health

practices and determine the applicability of regulatory require-

3.1 Definitions-General terms used in this Specification are This specification is under the jarisdiction of ASTM Committee F17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17 on Plastic Reard Direct as defined in Terminology F412, and abbreviations are in ccordance with Terminology D1600, unless otherwise speci-Pripe. rent edition approved Nov. 1, 2016. Published December 2016. Originally red in 2001. Last previous edition approved in 2010 as F2160–10. DOI: 3.2 Definitions of Terms Specific to This Standard. 3.2.1 CATV, n-cable television.

10.1520/F2160-16. <sup>1</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Castomer Service at service@astm.org, For Annual Book of ASTM Sandards volume information, refer to the standard's Document Summary page on the ASTM website. 3.2.2 conduit (duct), n-a tubular raceway for carrying power, communications, or other wires and cables

\*A Summary of Changes section appears at the end of this standard

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## Research & Development

### R & D - Selected Projects

- Allow recycled HDPE to be used without jeopardizing product performance
- Studies to prove long term performance 100+ years



## **Tools for the Industry**

- Mini-HDD Wall Thickness Calculator (web calculator, S-6))
  - Input your route information, get the recommended conduit wall type
- Safe Pull Strength Calculation (TN-63)
  - Tables of maximum pull strength by conduit size and wall type
- HDPE Conduit & Duct Handling Guide (TN-58)
  - Worker safety when handling & installing conduit





ConduitCalc.com

Tools



## **Publications**

## **Select Publications**

- PPI Handbook Chapter 14 on Duct & Conduit
- TN-50 Guide to Specifying HDPE Conduit
- TN-58 HDPE Conduit & Duct Handling Guide
- TN-61 Conduit Ovality and Coil-set
- Micro Trenching & Micro-ducts
- Joining of HDPE Conduit
- Conduit for High Voltage Power



Free to download



## Discussion

## Strategic Objective

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#### **Contact Us**

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PPI Home Page (www.plasticpipe.org) PPI PCD Home Page (www.plasticpipe.org/PowerCommunications) PPI eLearn<sup>™</sup> (https://elearn.plasticpipe.org/)

