

NEMA TCB 4-2016

Guidelines for the
Selection and
Installation of Smooth-
Wall Coilable High-
Density Polyethylene
(HDPE) Conduit



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Foreword

This guideline is intended to provide assistance with obtaining the most appropriate and satisfactory installation of HDPE conduit or raceway systems. It is in no way intended to assume or replace any responsibilities of engineers, customer representatives, owners, or other persons in establishing engineering design practices and procedures best suited to individual job conditions.



During the preparation phase of this document, the following were active participants:

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NEMA TCB 4 was approved by the NEMA Polymer Raceway Products Section. Approval does not necessarily imply that all members of the section voted for its approval. At the time of approval, the section consisted of the following members:

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Champion Fiberglass, Inc.—www.championfiberglass.com—Spring, TX
Electri-Flex Company—www.electriflex.com—Roselle, IL
FRE Composites—www.frecomposites.com—St. Andre-d'Argenteuil, PQ, Canada
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Royal Building Products—www.royalbuildingproducts.com—Shelby Township, MI
Southern Pipe, Inc.—www.southern-pipe.com—New London, NC
Southwire Company—www.southwire.com—Carrollton, GA
Thomas & Betts, a member of the ABB Group—www.tnb.com—Memphis, TN
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The Plastics Pipe Institute, in particular, was helpful in the development of TCB 4.



The NEMA Polymer Raceway Products Section will periodically review this standard and revise it as necessary.

Proposed or recommended revisions can be submitted to:

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CONTENTS

Selection Of Conduit And Duct	2
Types Of Raceway	2
Raceway Designed For Encased Burial (Eb) In Concrete	2
Pipe Stiffness	2
Handling And Storage Of Conduit And Duct.....	3
Handling.....	3
Storage	3
Bulk Storage.....	3
Fittings, Spacers, And Accessories.....	3
Inventories	3
Cleaners	4
Handling On The Jobsite	4
Installation	4
Introduction	4
Trench Excavation	4
Trench Wall	5
Trench Bottom.....	5
Conduit Separation	5
Raceway Supports	5
Power Duct Banks.....	6
Communication Duct Banks	6
Combined Power And Communication Duct Banks.....	7
Considerations For Specifiers	7
Joining Of Raceway.....	7
Pull-Out Resistance.....	7
Pressure Leak Rates.....	7
Infiltration Leakage	7
Corrosion Resistance	7
Joining Methods.....	7
Mechanical Fittings	8
Barbed Mechanical Fittings	8
Threaded Mechanical Fittings.....	8
Compression Fittings	8
Heat Fusion.....	8
Butt Fusion Joining	8
Socket Fusion Joining.....	9
Electrofusion Joining.....	9
Repair Operations.....	9
Expansion Joints.....	9
Encased Burial (Eb).....	10
Conduit And Duct Laying.....	10
Spacers	10
Sequence Of Laying.....	10
Closure Of A Run Between Manholes.....	10
Temperature	10
Anchoring	11
Concrete Pour	11
Backfilling	11
Direct Burial (Db).....	12
Conduit And Duct Laying.....	12
Temperature	12
Conduit Embedment And Final Backfill.....	12
Compaction	13
Expansion And Contraction	13
Field Bending.....	13

Repairs.....	14
Connections To Conduit Systems Of Other Materials.....	16
Conduit Rodding (Fishing).....	16
Mandrelling.....	16

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Scope

This guideline covers recommendations for the selection, handling, and installation of underground High-Density Polyethylene (HDPE) conduit or raceway for power, lighting, signaling, and communications applications. Corrugated coilable utility duct is not covered in this guideline (see NEMA TCB 3).

Nomenclature

Abbreviations for nonmetallic materials referenced in this guideline include the following:

HDPE	High-Density Polyethylene
PE	Polyethylene
PVC	Polyvinyl Chloride

Abbreviations for burial type include:

DB	Direct burial—refers to duct buried without concrete encasement
EB	Encased burial—refers to duct buried with concrete encasement

Abbreviations for stiffness include:

DS	Duct stiffness
PS	Pipe stiffness

Abbreviations for conduit type include:

EPEC-40	HDPE or PVC conduit (Schedule 40)
EPEC-80	Extra-heavy wall HDPE or PVC conduit (Schedule 80)
EPEC	Smooth Wall Coilable High-Density Polyethylene Conduit

Normative References

ASTM D618-13	<i>Standard Practice for Conditioning Plastics for Testing</i>
ASTM D638-14	<i>Standard Test Method for Tensile Properties of Plastics</i>
ASTM D790-15e2	<i>Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials</i>
ASTM D792-13	<i>Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement</i>
ASTM D1238-13	<i>Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer</i>
ASTM D1505-10	<i>Standard Test Method for Density of Plastics by the Density-Gradient Technique</i>
ASTM D1600-14	<i>Standard Terminology for Abbreviated Terms Relating to Plastics</i>
ASTM D1693-15	<i>Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics</i>
ASTM D2122-16	<i>Standard Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings</i>
ASTM D2682-14	<i>Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing</i>
ASTM D3350-14	<i>Standard Specification for Polyethylene Plastics Pipe and Fittings Materials</i>
ASTM D3435-15	<i>Standard Specification for Coilable High Density Polyethylene (HDPE) Cable in Conduit (CIC)</i>
ASTM E1885-08	<i>Standard Test Method for Density of Polyethylene by the Ultrasound Technique (withdrawn effective 2017)</i>
ASTM F412-16a	<i>Standard Terminology Relating to Plastic Piping Systems</i>
ASTM F1055-16a	<i>Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene and Crosslinked Polyethylene (PEX) Pipe and Tubing</i>
ASTM F1056-04 (2011)	<i>Standard Specification for Socket Fusion Tools for Use in Socket Fusion Joining Polyethylene Pipe or Tubing and Fittings</i>
ASTM F2160-16	<i>Standard Specification for Solid Wall High Density Polyethylene (HDPE) Conduit Based on Controlled Outside Diameter (OD)</i>