



Standard Specification for Mechanical Couplings Used on Polyethylene Conduit, Duct and Innerduct¹

This standard is issued under the fixed designation F 2176; 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 reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification establishes requirements for material, performance, workmanship and test methods for the qualification of 2 in. and smaller mechanical couplings that connect to DR 15.5 and lower polyethylene conduit, duct and innerduct covered by Specification F 2160. Throughout this standard, “conduit” refers to “conduit, duct or innerduct” manufactured in accordance with Specification F 2160.

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units which are provided for information only and are not considered standard.

1.3 The couplings covered by this specification are typically designed to join between conduit ends (in-line coupling). The same coupling-to-conduit joint design may be used as a part of other coupling joint designs that telescope, or connect to bulkheads, or other adapter fitting designs. The requirements of this standard apply only to the coupling-to-conduit joint design. The performance requirements of other coupling joint designs are not a part of this standard.

1.4 The following safety hazards caveat pertains only to the test methods portion, Section 9 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 of this standard to establish appropriate safety and health practices and determine the applicability of regulatory requirements prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- D 638 Test Methods for Tensile Properties of Plastics²
- D 1600 Terminology Relating to Abbreviations, Acronyms and Codes for Terms Relating to Plastics²
- D 2444 Test Method for Impact Resistance of Thermoplastic Pipe and Fittings²
- F 412 Terminology Related to Plastic Piping Systems²

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² Annual Book of ASTM Standards, Vol

F 2160 Specification for Solid Wall (PE) Conduit (DR) Based on Outside Diameter (OD)²

3. Terminology

3.1 Definitions are in accordance with Terminology F 412 and abbreviations are in accordance with Terminology D 1600, unless otherwise specified.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *coupling joint, n*—the connection between the coupling and a conduit end.

3.2.2 *duct, n*—a conduit (see Terminology F 412, *conduit*).

3.2.3 *inline mechanical couplings, n*—a device used to join two conduit ends.

3.2.4 *innerduct, n*—a conduit installed inside a conduit.

4. Materials and Manufacture

4.1 The physical properties of each material used to produce mechanical couplings shall be available from the coupling manufacturer upon request.

4.2 Specifications outlining all the physical properties and effects of environmental conditions for materials of manufacture shall be available from the coupling manufacturer upon request.

NOTE 1—Materials should have a demonstrated resistance to environmental stress cracking when exposed, under stress, to chemical compounds encountered in or external to conduit systems and a demonstrated resistance to bacteriological decomposition. Such compounds include, but are not limited to, alkalines, fertilizers, ice thawing chemicals, insecticides, herbicides, and acids.

5. Performance Requirements

5.1 The following requirements shall be met on each coupling design and nominal size. Any revisions by the manufacturer to the original coupling design after the initial qualification testing requires retesting to ensure conformance with these requirements.

NOTE 2—It is permissible when accomplishing these tests to do so on only the thickest and thinnest (lowest and highest DR) conduit wall sections in Specification F 2160 that the coupling is to be used on. If in those tests all performance requirements are met, all wall thicknesses between those tested may be considered as having met the requirements.

5.2 Pressure Requirements: