



Standard Specification for Plastic Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing¹

This standard is issued under the fixed designation F2159; 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 sulfone plastic insert fittings and copper crimp rings for four sizes ($\frac{3}{8}$, $\frac{1}{2}$, and $\frac{3}{4}$ and 1) of cross-linked polyethylene (PEX) tubing that meet the requirements for Specification F876 and polyethylene of raised temperature (PE-RT) tubing that meet the requirements of Specifications F2623 and F2769. These fittings are intended for use in 100 psi (690 kPa) cold- and hot-water distribution systems operating at temperatures up to and including 180°F (82°C). Included are the requirements for material, molded part properties, performance, workmanship, dimensions, and markings to be used on the fittings and rings.

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

1.3 The following is an index of the appendix in this specification:

GO/NO-GO Crimp Gauges [Appendix X1](#)

1.4 The following precautionary caveat pertains only to the test method portions, Sections 11 and 12, 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:²

[D618 Practice for Conditioning Plastics for Testing](#)
[D1598 Test Method for Time-to-Failure of Plastic Pipe](#)

¹ This specification is under the jurisdiction of ASTM Committee F17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17.10 on Fittings. Current edition approved Aug. 1, 2014. Published September 2014. Originally approved 2001. Last previous edition approved in 2011 as F2159-11. DOI: 10.1520/F2159-14.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

Under Constant Internal Pressure

[D1599 Test Method for Resistance to Short-Time Hydraulic Pressure of Plastic Pipe, Tubing, and Fittings](#)
[D1600 Terminology for Abbreviated Terms Relating to Plastics](#)
[D2122 Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings](#)
[D6394 Specification for Sulfone Plastics \(SP\)](#)
[F412 Terminology Relating to Plastic Piping Systems](#)
[F876 Specification for Crosslinked Polyethylene \(PEX\) Tubing](#)
[F1498 Specification for Taper Pipe Threads 60° for Thermoplastic Pipe and Fittings](#)
[F1807 Specification for Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene \(PEX\) Tubing and SDR9 Polyethylene of Raised Temperature \(PE-RT\) Tubing](#)
[F2623 Specification for Polyethylene of Raised Temperature \(PE-RT\) SDR 9 Tubing](#)
[F2769 Specification for Polyethylene of Raised Temperature \(PE-RT\) Plastic Hot and Cold-Water Tubing and Distribution Systems](#)

2.2 ASME Standard:

[B 1.20.1 Pipe Threads General Purpose Inch](#)³

2.3 NSF International Standard:

[ANSI/NSF Standard No. 14 for Plastic Piping Components and Related Materials](#)⁴
[ANSI/NSF Standard No. 61 for Drinking Water System Components-Health Effects](#)⁴

3. Terminology

3.1 *Definitions*—Definitions are in accordance with Terminology F412 and abbreviations are in accordance with Terminology D1600, unless otherwise indicated.

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁴ Available from NSF International, P.O. Box 130140, 789 N. Dixboro Rd., Ann Arbor, MI 48113-0140, <http://www.nsf.org>.

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