



Standard Specification for Crosslinked Polyethylene (PEX) Hot- and Cold-Water Distribution Systems¹

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1. Scope*

1.1 This specification covers requirements, test methods, and marking requirements for system components when tested with nominal SDR9 crosslinked polyethylene tubing as a system. Systems are intended for 100 psi (0.69 MPa) water service up to and including a maximum working temperature of 180°F (82°C). Requirements and test methods are included for materials, workmanship, dimensions and tolerances, burst pressure, sustained pressure, excessive temperature and pressure, and thermo-cycling tests. The components covered by this specification are intended for use in residential and commercial, hot and cold, potable water distribution systems or other applications such as municipal water service lines, radiant panel heating systems, hydronic baseboard heating systems, snow and ice melting systems, and building services pipe.

1.2 The text of this specification references notes, footnotes, and appendixes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the specification.

1.3 The values stated in inch-pound units are to be regarded as the standard. The values stated in parentheses are provided for information only.

NOTE 1—Suggested hydrostatic design stresses and hydrostatic pressure ratings for tubing and fittings are listed in [Appendix X1](#). Design, assembly, and installation considerations are discussed in [Appendix X2](#). An optional performance qualification and an in-plant quality control program are recommended in [Appendix X3](#).

1.4 The following safety hazards caveat pertains only to the test method portion, Section 7, 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 limitations 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 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](#)
- [D1898 Practice for Sampling of Plastics \(Withdrawn 1998\)³](#)
- [D2749 Symbols for Dimensions of Plastic Pipe Fittings](#)
- [D2837 Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products](#)
- [D3140 Practice for Flaring Polyolefin Pipe and Tubing \(Withdrawn 1999\)³](#)
- [F412 Terminology Relating to Plastic Piping Systems](#)
- [F876 Specification for Crosslinked Polyethylene \(PEX\) Tubing](#)
- [F1960 Specification for Cold Expansion Fittings with PEX Reinforcing Rings for Use with Cross-linked Polyethylene \(PEX\) Tubing](#)
- [F1961 Specification for Metal Mechanical Cold Flare Compression Fittings with Disc Spring for Crosslinked Polyethylene \(PEX\) Tubing](#)
- [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](#)
- [F1865 Specification for Mechanical Cold Expansion Insert Fitting With Compression Sleeve for Cross-linked Polyethylene \(PEX\) Tubing](#)
- [F2080 Specification for Cold-Expansion Fittings With Metal Compression-Sleeves for Cross-Linked Polyethylene \(PEX\) Pipe](#)
- [F2159 Specification for Plastic Insert Fittings Utilizing a](#)

¹ This specification is under the jurisdiction of ASTM Committee F17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17.61 on Water.

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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.

³ The last approved version of this historical standard is referenced on www.astm.org.