



Standard Specification for Cold Expansion Fittings with PEX Reinforcing Rings for Use with Cross-linked Polyethylene (PEX) Tubing¹

This standard is issued under the fixed designation F1960; 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 covers cold expansion fittings and cross-linked (PEX) reinforcing rings for use with cross-linked polyethylene (PEX) plastic tubing in $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$ in. 2, $2\frac{1}{2}$, and 3 in. nominal diameters that meet the requirements of Specifications F876 and F877. 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). The system is comprised of a PEX reinforcing ring and a cold expansion fitting. Included are the requirements for materials, workmanship, dimensions, and markings to be used on the fitting components. The components covered by this specification are intended for use in residential and commercial, hot and cold, potable water distribution systems as well as sealed central heating, including under-floor-heating systems.

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 that are provided for information only and are not considered standard.

1.3 *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

A351/A351M Specification for Castings, Austenitic, for Pressure-Containing Parts

B16/B16M Specification for Free-Cutting Brass Rod, Bar and Shapes for Use in Screw Machines

B140/B140M Specification for Copper-Zinc-Lead (Red Brass or Hardware Bronze) Rod, Bar, and Shapes

B62 Specification for Composition Bronze or Ounce Metal Castings

B75/B75M Specification for Seamless Copper Tube

B283/B283M Specification for Copper and Copper-Alloy Die Forgings (Hot-Pressed)

B371/B371M Specification for Copper-Zinc-Silicon Alloy Rod

B453/B453M Specification for Copper-Zinc-Lead Alloy (Leaded-Brass) Rod, Bar, and Shapes

B584 Specification for Copper Alloy Sand Castings for General Applications

B927/B927M Specification for Brass Rod, Bar, and Shapes

B967/B967M Specification for Copper-Zinc-Tin-Bismuth Alloy Rod, Bar and Wire

D792 Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement

D1505 Test Method for Density of Plastics by the Density-Gradient Technique

D1600 Terminology for Abbreviated Terms Relating to Plastics

D2122 Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings

D2765 Test Methods for Determination of Gel Content and Swell Ratio of Crosslinked Ethylene Plastics

D3035 Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter

D6394 Specification for Sulfone Plastics (SP)

F412 Terminology Relating to Plastic Piping Systems

F876 Specification for Crosslinked Polyethylene (PEX) Tubing

F877 Specification for Crosslinked Polyethylene (PEX) Hot- and Cold-Water Distribution Systems

2.2 ANSI Standard:

B1.20 Pipe Threads General Purpose³

B16.18 Cast Copper Alloy Solder Joint Pressure Fittings

B16.22 Wrought Copper and Copper Alloy Solder Joint Pressure Fittings

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 April 1, 2015. Published May 2015. Originally approved in 1999. Last previous edition approved in 2014 as F1960 – 14a. DOI: 10.1520/F1960-15.

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

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