



Designation: F 2080 – 01

Standard Specification for Cold-Expansion Fittings With Metal Compression-Sleeves for Cross-Linked Polyethylene (PEX) Pipe¹

This standard is issued under the fixed designation F 2080; 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 metal cold-expansion fittings using metal compression-sleeves for use with cross-linked polyethylene (PEX) plastic pipe in ½-in., ¾-in., and 1-in. nominal diameters, whereby the PEX pipe is cold-expanded before fitting assembly. These cold-expansion fittings and metal compression-sleeves 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, with continuous operation at pressures up to and including 100 psi (690 kPa), and at temperatures up to and including 180°F (82°C).

1.2 Included in this specification are the requirements for materials, workmanship, dimensions, burst pressure and sustained pressure, excessive temperature and pressure, and thermocycling tests, and markings to be used on the fittings and compression-sleeves.

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

1.4 The following precautionary caveat pertains only to the test method portion, Section 10, 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:

- A 582/A 582M Specification for Free-Machining Stainless and Heat Resisting Steel Bars²
- B 16/B 16M Specification for Free-Cutting Brass Rod, Bar, and Shapes for Use in Screw Machines³
- B 140/B 140M Specification for Copper-Zinc-Lead (Leaded Red Brass or Hardware Bronze) Rod, Bar and Shapes³

B 283 Specification for Copper and Copper-Alloy Die Forgings (Hot-Pressed)³

B 689 Specification for Electroplated Engineering Nickel Coatings⁴

B 851 Specification for Automated Controlled Shot Peening of Metallic Articles Prior to Nickel, Autocatalytic Nickel, or Chromium Plating, or As a Final Finish⁴

D 618 Practice for Conditioning Plastics and Electrical Insulating Materials for Testing⁵

D 792 Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement⁵

D 1505 Test Method for Density of Plastics by the Density-Gradient Technique⁵

D 1598 Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure⁶

D 1599 Test Method for Short-Time, Hydraulic Failure Pressure of Plastic Pipe, Tubing, and Fittings⁶

D 1600 Terminology for Abbreviated Terms Relating to Plastics⁵

D 2122 Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings⁶

D 2765 Test Methods for Determination of Gel Content and Swell Ratio of Cross-Linked Ethylene Plastics⁷

D 3045 Practice for Heat Aging of Plastics Without Load⁷

F 412 Terminology Relating to Plastic Piping Systems⁶

F 876 Specification for Crosslinked Polyethylene (PEX) Tubing⁶

F 877 Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems⁶

2.2 Canadian Standards Association:

CAN/CSA B137.5 – M99⁸

2.3 ANSI Standards:

B1.20.1 Pipe Threads General Purpose (Inch)⁹

B16.18 Cast Copper Alloy Solder Joint Pressure Fittings (Inch)⁹

⁴ Annual Book of ASTM Standards, Vol 02.05.

⁵ Annual Book of ASTM Standards, Vol 08.01.

⁶ Annual Book of ASTM Standards, Vol 08.04.

⁷ Annual Book of ASTM Standards, Vol 08.02.

⁸ Available from the Canadian Standards Association, 178 Rexdale Blvd., Rexdale (Toronto), Canada M9W 1R3

⁹ Available from the American National Standards Institute, 11 West 42nd St., 13th Floor, New York, NY 10036.

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. Current edition approved Jan. 10, 2001. Published April 2001.

² Annual Book of ASTM Standards, Vol 01.03.

³ Annual Book of ASTM Standards, Vol 02.01.