



Standard Specification for Metal Insert Fittings for Polyethylene/Aluminum/ Polyethylene and Crosslinked Polyethylene/Aluminum/ Crosslinked Polyethylene Composite Pressure Pipe¹

This standard is issued under the fixed designation F 1974; 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 insert fittings with split ring and compression nut (compression joint) and metal insert fittings with copper crimp rings (crimp joint) for four sizes of composite pressure pipe. These fittings are intended for use in 125 psi (690 kPa) cold- and hot-water distribution systems operating at temperatures up to and including 180 °F (82 °C). (When used in polyethylene/aluminum/polyethylene systems the maximum operating temperature is limited by the pipe to 140 °F (60 °C) and where applicable 180°F (82°C)). Included are the requirements for materials, workmanship, burst pressure, sustained pressure, excessive temperature and pressure, temperature cycling tests, and markings to be used on the fittings and rings. The fittings covered by this specification are intended for use in potable water distribution systems for residential and commercial applications, water service, underground irrigation systems, and radiant panel heating systems, baseboard, snow- and ice-melt systems, and gases that are compatible with the composite pipe and fittings.

1.2 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.

NOTE 1—The tables show the “nominal size” in millimetres with the inch size in parentheses. This exception is made to harmonize the “nominal size” with the two pipe standards, F 1281 and F 1281.

1.3 The following precautionary caveat pertains only to the test method 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 limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

B 16 Specification for Free-Cutting Brass Rod, Bar, and

Shapes for Use in Screw Machines²

B 36/B 36M Specification for Brass Plate, Sheet, Strip and Rolled Bar²

B 62 Specification for Composition Bronze or Ounce Metal Castings²

B 75 Specification for Seamless Copper Tube²

B 134/B 134M Standard Specification for Brass Wire

B 140 Specification for Copper-Zinc-Lead (Leaded Red Brass or Hardware Bronze) Rod, Bar, and Shapes²

B 159 Specification for Phosphor Bronze Wire²

B 283 Specification for Copper and Copper-Alloy Die Forgings (Hot-Pressed)²

B 584 Specification for Copper Alloy Sand Castings for General Applications²

D 618 Practice for Conditioning Plastics and Electrical Insulating Materials for Testing³

D 1598 Test Method for Time-To-Failure of Plastic Pipe Under Constant Internal Pressure⁴

D 1599 Test Method for Short-Time, Hydraulic Failure Pressure of Plastic Pipe, Tubing and Fittings⁴

D 1600 Terminology for Abbreviated Terms Relating to Plastics⁵

D 2122 Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings⁴

D 2240 Test Method for Rubber Property Durometer Hardness⁶

E 18 Test Methods for Rockwell Hardness and Superficial Hardness of Metallic Materials⁷

F 412 Terminology Relating to Plastic Piping Systems⁴

F 1281 Specification for Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene (PEX/AL/PEX) Pressure Pipe⁴

F 1282 Specification for Polyethylene/Aluminum/Polyethylene (PE/AL/PE) Composite Pressure Pipe⁴

2.2 ANSI Standards:

² Annual Book of ASTM Standards, Vol 02.01.

³ Annual Book of ASTM Standards, Vol 02.02.

⁴ Annual Book of ASTM Standards, Vol 08.04.

⁵ Annual Book of ASTM Standards, Vol 08.01.

⁶ Annual Book of ASTM Standards, Vol 09.01.

⁷ Annual Book of ASTM Standards, Vol 03.01.

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.

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