



Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings¹

This standard is issued under the fixed designation F2620; 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 practice describes procedures for making joints with polyethylene (PE) pipe and fittings by means of heat fusion joining in, but not limited to, a field environment. Other suitable heat fusion joining procedures are available from various sources including pipe and fitting manufacturers. This standard does not purport to address all possible heat fusion joining procedures, or to preclude the use of qualified procedures developed by other parties that have been proved to produce reliable heat fusion joints.

1.2 The parameters and procedures are applicable only to joining polyethylene pipe and fittings of related polymer chemistry. They are intended for PE fuel gas pipe per Specification [D2513](#) and PE potable water, sewer and industrial pipe manufactured per Specification [F714](#), Specification [D3035](#), and AWWA C901 and C906. Consult with the pipe manufacturers to make sure they approve this procedure for the pipe to be joined (see [Appendix X1](#)).

NOTE 1—Information about polyethylene pipe and fittings that have related polymer chemistry is presented in Plastics Pipe Institute (PPI) TR-33 and TR-41.

1.3 Parts that are within the dimensional tolerances given in present ASTM specifications are required to produce sound joints between polyethylene pipe and fittings when using the joining techniques described in this practice.

1.4 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.

1.5 The text of this practice 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 practice.

1.6 *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 appro-*

priate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

2.1 ASTM Standards:²

[D2513](#) Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings

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

[F714](#) Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter

[F1056](#) Specification for Socket Fusion Tools for Use in Socket Fusion Joining Polyethylene Pipe or Tubing and Fittings

2.2 PPI Documents:

[TR-33](#) Generic Butt Fusion Joining Procedure for Field Joining of Polyethylene³

[TR-41](#) Generic Saddle Fusion Joining Procedure for Polyethylene Gas Piping³

2.3 AWWA Documents:

[AWWA C901](#) Standard for Polyethylene (PE) Pressure Pipe and Tubing, ½ in. (13 mm) through 3 in. (76 mm), for Water Service⁴

[AWWA C906](#) Standard for Polyethylene (PE) Pressure Pipe and Fittings, 4 in. (100 mm) through 63 in. (1575 mm), for Water Distribution and Transmission⁴

3. Summary of Practice

3.1 The principle of heat fusion joining of polyethylene (PE) pipe is to heat two prepared surfaces to a designated temperature, then fuse them together by application of a sufficient force. This force causes the melted materials to flow and mix, thereby resulting in fusion.

3.2 The heat-fusion procedures covered in this practice are socket fusion, butt fusion, and saddle fusion.

¹ This practice is under the jurisdiction of ASTM Committee [F17](#) on Plastic Piping Systems and is the direct responsibility of Subcommittee [F17.20](#) on Joining.

Current edition approved Nov. 1, 2013. Published January 2014. Originally approved in 2006. Last previous edition approved in 2012 as F2620 – 12. DOI: 10.1520/F2620-13.

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 Plastics Pipe Institute (PPI), 105 Decker Court, Suite 825, Irving, TX 75062, <http://www.plasticpipe.org>.

⁴ Available from American Water Works Association (AWWA), 6666 W. Quincy Ave., Denver, CO 80235, <http://www.awwa.org>.