



Standard Specification for Billets made by Winding Molten Extruded Stress-Rated High Density Polyethylene (HDPE)¹

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1. Scope*

1.1 This specification covers billets made from stress-rated high-density polyethylene (HDPE) materials.

1.2 The billets are manufactured by application of molten extruded material onto a rotating mandrel to form a monolithic mass. Removal of the mandrel provides a billet in the approximate shape of a thick-walled cylindrical shell. Machining prior to dimensioning is acceptable.

NOTE 1—Although it is impossible to address all manufacturing details related to the fabrication of billets in this specification, successful heat fusion bonding of HDPE is obtained through controlled application of sufficient heat to cause melting in combination with applied force over a period of time.

1.3 The billets are intended for fabrication into pipe fittings such as flange adapters and reducers.

1.4 Requirements for and use of the fabricated pipe fittings shall be in accordance with an applicable product specification. This specification for billets does not include requirements for items fabricated from the billets.

1.5 This specification includes thermoplastic pipe material designation codes for selection of appropriate stress-rated material, together with performance requirements for billets and test methods for determining conformance with the requirements.

1.6 Minimum quality control measures are prescribed for manufacturers. See **Annex A1** for quality control for billets conforming to this specification.

1.7 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.

1.8 *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

- D618 Practice for Conditioning Plastics for Testing
- D638 Test Method for Tensile Properties of Plastics
- D1238 Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer
- D1600 Terminology for Abbreviated Terms Relating to Plastics
- D1603 Test Method for Carbon Black Content in Olefin Plastics
- D2122 Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings
- D2837 Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products
- D3350 Specification for Polyethylene Plastics Pipe and Fittings Materials
- D4218 Test Method for Determination of Carbon Black Content in Polyethylene Compounds By the Muffle-Furnace Technique
- F412 Terminology Relating to Plastic Piping Systems

2.2 NSF/ANSI Standards:³

- Standard No. 14 for Plastic Piping Components and Related Materials
- Standard No. 61 for Drinking Water Systems Components—Health Effects

2.3 PPI Standards:⁴

- PPI TR-3 Policies and Procedures for Developing Hydrostatic Design Basis (HDB), Pressure Design Basis (PDB), Strength Design Basis (SDB), and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials or Pipe

¹ This specification is under the jurisdiction of ASTM Committee F17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17.26 on Olefin Based Pipe.

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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 Available from NSF International, P.O. Box 130140, 789 N. Dixboro Rd., Ann Arbor, MI 48113-0140, <http://www.nsf.org>.

⁴ Available from Plastics Pipe Institute (PPI), 105 Decker Court, Suite 825, Irving, TX 75062, <http://www.plasticpipe.org>.