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AMERICAN SOCIETY FOR TESTING AND MATERIALS
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Standard Specification for “Fiberglass” (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe and Pipe Fittings, Adhesive Bonded Joint Type Epoxy Resin, for Condensate Return Lines¹

This standard is issued under the fixed designation D 5686; 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.

This standard has been approved for use by agencies of the Department of Defense. Consult the DoD Index of Specifications and Standards for the specific year of issue which has been adopted by the Department of Defense.

1. Scope

1.1 This specification covers machine-made reinforced thermosetting epoxy resin pipe and fittings nominal pipe size (NPS) 2 in. (50 mm) through 12 in. (304 mm) diameter to be used for continuous service in condensate return lines for the specific maximum temperature and pressure covered by this specification, 250°F (121°C) and 125 psig (862 kPa).

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

1.3 The dimensionless designator NPS has been substituted in this specification for such traditional terms as “nominal diameter”, “size”, and “nominal size”.

1.4 The following safety hazards caveat pertains only to the test method portion, Section 9, of this specification:

1.5 *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.*

NOTE 1—There is no similar or equivalent ISO standard.

2. Referenced Documents

2.1 ASTM Standards:

- D 883 Terminology Relating to Plastics²
- D 1600 Terminology for Abbreviated Terms Relating to Plastics²
- D 2310 Classification for Machine-Made Reinforced Thermosetting Resin Pipe³
- D 3567 Practice for Determining Dimensions of Reinforced Thermosetting Resin Pipe (RTRP) and Fittings³
- D 3951 Practice for Commercial Packaging⁴
- F 412 Terminology Relating to Plastic Piping Systems³

¹ This specification is under the jurisdiction of ASTM Committee D-20 on Plastics and is the direct responsibility of Subcommittee D20.23 on Reinforced Plastic Piping System and Chemical Equipment.

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² Annual Book of ASTM Standards, Vol 08.01.

³ Annual Book of ASTM Standards, Vol 08.04.

⁴ Annual Book of ASTM Standards, Vol 15.09.

2.2 ANSI Standard:

B 16.5 Steel Pipe Flanges and Flanged Fittings⁵

3. Terminology

3.1 Definitions:

3.1.1 *General*—Definitions are in accordance with Terminologies D 833 and F 412 and abbreviations are in accordance with Terminology D 1600, unless otherwise indicated. The abbreviation for reinforced thermosetting-resins pipe is RTRP.

4. Classification

4.1 General:

4.1.1 Pipe meeting this specification is classified by type, grade, and class similar to Classification D 2310.

4.1.2 Fittings meeting this specification are also classified by types (method of manufacture) and grades (generic type of resin).

4.2 Types of Pipe:

4.2.1 *Type I*—Filament-wound pipe.

4.2.2 *Type II*—Centrifugally-cast pipe.

4.3 Types of Fittings:

4.3.1 *Type I*—Filament-wound fittings.

4.3.2 *Type II*—Centrifugally-cast fittings.

4.3.3 *Type III*—Molded fittings.

4.4 Grades of Pipe and Fittings:

4.4.1 *Grade I*—Glass-fiber-reinforced epoxy resin (pipe and fittings).

4.5 Classes of Pipe:

4.5.1 *Class C*—Epoxy resin liner (nonreinforced).

4.5.2 *Class F*—Epoxy resin liner (reinforced).

5. Materials and Manufacture

5.1 *General*—The fiberglass pipe and fittings shall be round, straight, and of uniform density, resin content, and surface finish. All pipe ends shall be cut at right angles to the axis of the pipe and any sharp edges removed. The bore of the pipe shall contain a smooth uniform liner to protect the glass fiber reinforcement. The liner shall be composed of all epoxy

⁵ Available from American National Standards Institute, 11 West 42nd St., 13th Floor, New York, NY 10036.