



Standard Specification for Filament-Wound “Fiberglass” (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe¹

This standard is issued under the fixed designation D 2996; 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.

1. Scope

1.1 This specification² covers machine-made reinforced thermosetting resin pressure pipe (RTRP) manufactured by the filament winding process up to 24 in. nominal size. Included are a classification system and requirements for materials, mechanical properties, dimensions, performance, methods of test, and marking.

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 following safety hazards caveat pertains only to the test method portion, Section 8, of this specification: *This standard does not purport to address all of the safety problems, 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—The term “fiberglass pipe” as described in Section 3 of this specification applies to both reinforced thermosetting resin pipe (RTRP) and reinforced plastic mortar pipe (RPMP). This specification covers only reinforced thermosetting resin pipe (RTRP).

NOTE 2—This specification is applicable to RTRP where the ratio of outside diameter to wall thickness is 10:1 or more.

NOTE 3—There is no similar or equivalent ISO Standard.

2. Referenced Documents

2.1 ASTM Standards:

- D 618 Practice for Conditioning Plastics and Electrical Insulating Materials for Testing²
- D 638 Test Method for Tensile Properties of Plastics²
- D 883 Terminology Relating to Plastics^{2,3}
- D 1598 Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure³
- D 1599 Test Method for Short-Time Hydraulic Failure Pressure of Plastic Pipe, Tubing, and Fittings³

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

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² This specification was revised to include an ISO equivalency statement and a section on keywords.

³ Annual Book of ASTM Standards, Vol 08.01.

D 1600 Terminology for Abbreviated Terms Relating to Plastics^{2,3}

D 2105 Test Method for Longitudinal Tensile Properties of “Fiberglass” (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe and Tube³

D 2143 Test Method for Cyclic Pressure Strength of Reinforced, Thermosetting Plastic Pipe³

D 2310 Classification for Machine-Made “Fiberglass” (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe³

D 2412 Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading³

D 2992 Practice for Obtaining Hydrostatic or Pressure Design Basis for “Fiberglass” (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe and Fittings³

D 3567 Practice for Determining Dimensions of “Fiberglass” (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe and Fittings³

F 412 Terminology Relating to Plastic Piping Systems⁴

3. Terminology

3.1 Definitions:

3.1.1 *General*—Definitions are in accordance with Terminologies D 883 and F 412 and abbreviations are in accordance with Terminology D 1600, unless otherwise indicated. The abbreviation for reinforced thermosetting resin pipe is RTRP.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *coating*—a resin layer, with or without filler or reinforcement, or both, applied to the exterior surface of the pipe structural wall.

3.2.2 *fiberglass pipe*—a tubular product containing glass-fiber reinforcements embedded in or surrounded by cured thermosetting resin; the composite structure may contain aggregate, granular or platelet fillers, thixotropic agents, pigments, or dyes; thermoplastic or thermosetting liners or coatings may be included.

3.2.3 *filament winding*—a process used to manufacture tubular goods by winding continuous fibrous glass strand roving, or roving tape, saturated with liquid resin or preimpregnated with partially cured resin (subsequent heating may be required to polymerize the resin system) onto the outside of a mandrel in a predetermined pattern under controlled tension;

⁴ Annual Book of ASTM Standards, Vol 08.04.