Designation: D2925 – 14

An American National Standard

Standard Test Method for Beam Deflection of "Fiberglass" (Glass-Fiber-Reinforced Thermosetting Resin) Pipe Under Full Bore Flow[1]

This standard is issued under the fixed designation D2925; 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 test method covers measurement of the deflection as a function of time of a specimen of fiberglass pipe supported on a flat non-arced support as a simple beam under full bore flow of water at elevated temperatures. Both glass-fiber-reinforced thermosetting-resin pipe (RTRP) and glass-fiber-reinforced polymer mortar pipe (RPMP) are fiberglass pipes.

NOTE 1—For the purposes of this standard, polymer does not include natural polymers.

1.2 This test method can be used to determine deflection at varying conditions by substituting other test media.

1.3 Deflections observed using this test method are representative only of piping supported as a simple beam under full bore flow which has one diameter of pipe overhanging at each support.

1.4 The values stated in SI units are to be regarded as the standard. The values given in parentheses are provided for information purposes only.

NOTE 2—There is no known ISO equivalent to this standard.

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.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

C33 Specification for Concrete Aggregates

D883 Terminology Relating to Plastics

D1600 Terminology for Abbreviated Terms Relating to Plastics

D3567 Practice for Determining Dimensions of "Fiberglass" (Glass-Fiber-Reinforced Thermosetting Resin) Pipe and Fittings

F412 Terminology Relating to Plastic Piping Systems

3. Terminology

3.1 *General*—Definitions are in accordance with Terminologies D883 and F412 and abbreviations are in accordance with Terminology D1600, unless otherwise indicated.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *aggregate*—a siliceous sand conforming to the requirements of Specification C33, except that the requirements for gradation shall not apply.

3.2.2 *fiberglass pipe*—a tubular product containing glass fiber reinforcement 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 may be included.

3.2.3 *reinforced thermosetting resin pipe (RTRP)*—a fiberglass pipe without aggregate.

3.2.4 *reinforced polymer mortar pipe (RPMP)*—a fiberglass pipe with aggregate.

4. Significance and Use

4.1 In the absence of deflection measurements from actual installed-above-ground piping, this test method may be used to evaluate the influence of span length on mid-span deflections at differing temperatures under full bore flow.

NOTE 3—A flat bearing area, small contact area, and narrow bearing width may induce high localized support interaction stresses, and constraints imposed by the supports may also adversely influence deflections and performance of the pipe.

5. Apparatus

5.1 *Rigid Support* with edges rounded to a 6-mm (¼-in.) radius, consisting of two uprights of a convenient height. The uprights are to be spaced at a predetermined distance over which deflection is to be determined as shown on Fig. 1. The uprights shall have lateral guides, a saddle, groove, or indentation on the top to keep the pipe specimen from rolling off when placed in position.

[1] This test method 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] 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.

***A Summary of Changes section appears at the end of this standard**

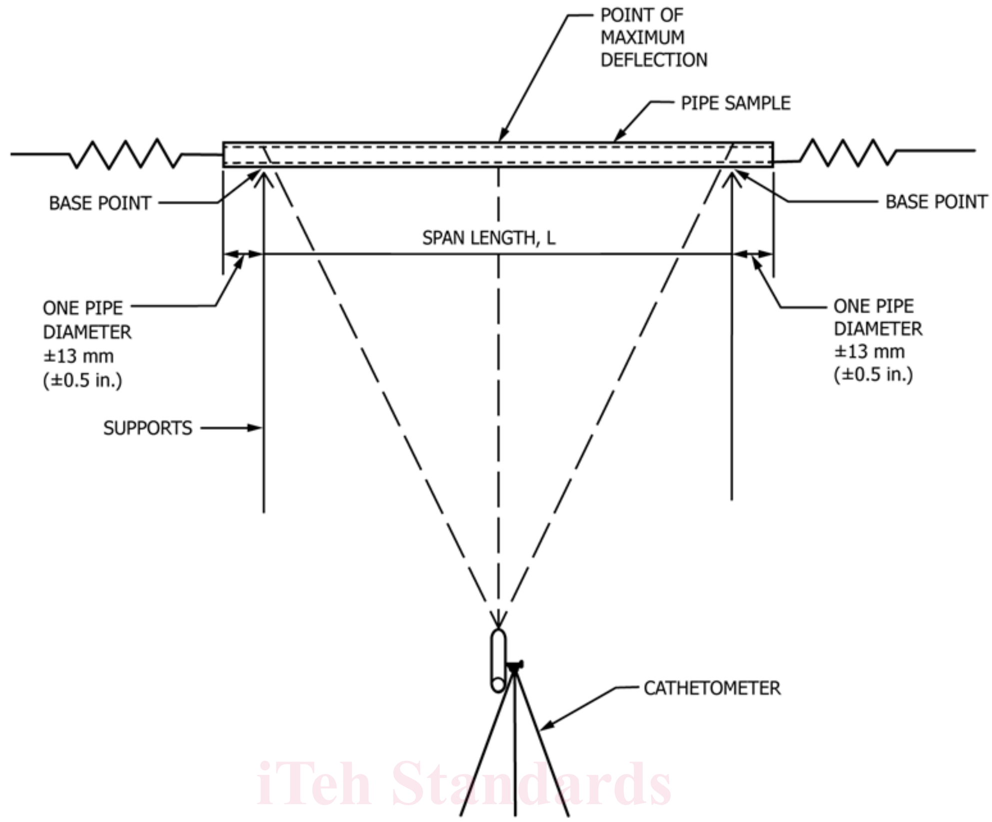

FIG. 1 Schematic of Test Specimen Support

5.1.1 The support space distance shall be estimated for a maximum allowable sag of 12.7 mm (½ in.) at test conditions. This estimate may be made by solving Eq 1 for *L,* using y = 12.7 mm (½ in.) and assuming an elastic modulus, E = 1 000 000 psi, unless a more accurate value is available.

5.2 *Source of Hot Water and a Feed System* maintained at conditions such that when this source is coupled to the pipe specimen and the water is fed into the specimen, the water emerging from the specimen shall be maintained continuously at the controlled temperature within ±2°C (3.6°F). The water shall be fed into the specimen at a head not exceeding 1.5 m (5 ft) and allowed to flow through it under such conditions that the pipe specimen is filled with the controlled temperature water at all times. Any recirculation shall be vented to atmosphere. A schematic drawing of the test setup is shown on Fig. 2.

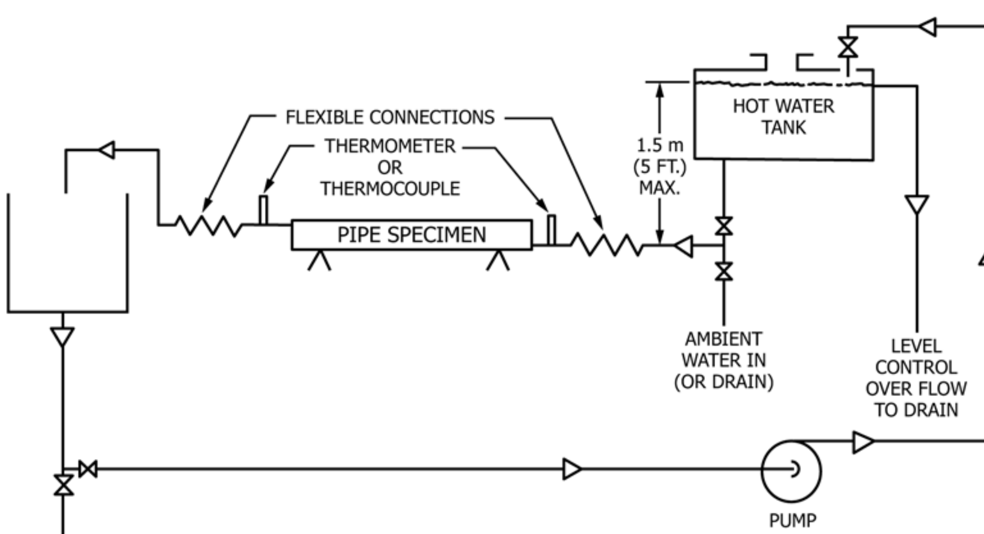

FIG. 2 Schematic of Test Set-up for Beam Deflection Test on Pipe