
Standard Method of Test for

**Determination of Compression
Capacity for Profile Wall Plastic
Pipe by Stub Compression Loading**

AASHTO Designation: T 341-22

Technically Revised: 2022

Technical Subcommittee: 4b, Flexible and Metallic Pipe



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1. SCOPE

- 1.1. This test method covers determination of compression capacity of profile wall plastic pipe in the stub compression test.
- 1.2. This test method covers thermoplastic resin pipe.
- 1.3. *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.*
- 1.4. *The quality of the results produced by this standard are dependent on the competence of the personnel performing the procedure and the capability, calibration, and maintenance of the equipment used. Agencies that meet the criteria of R 18 are generally considered capable of competent and objective testing/sampling/inspection/etc. Users of this standard are cautioned that compliance with R 18 alone does not completely assure reliable results. Reliable results depend on many factors; following the suggestions of R 18 or some similar acceptable guideline provides a means of evaluating and controlling some of those factors.*

2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
 - M 339M/M 339, Thermometers Used in the Testing of Construction Materials
 - R 18, Establishing and Implementing a Quality Management System for Construction Materials Testing Laboratories
- 2.2. *ASTM Standards:*
 - D695, Standard Test Method for Compressive Properties of Rigid Plastics
 - D1600, Standard Terminology for Abbreviated Terms Relating to Plastics
 - E1, Standard Specification for ASTM Liquid-in-Glass Thermometers
 - E177, Standard Practice for Use of the Terms Precision and Bias in ASTM Test Methods
 - E230/E230M, Standard Specification for Temperature–Electromotive Force (emf) Tables for Standardized Thermocouples
 - E2877, Standard Guide for Digital Contact Thermometers

- F412, Standard Terminology Relating to Plastic Piping Systems

2.3. *International Electrotechnical Commission Standard:*

- IEC 60584-1: 2013 Thermocouples - Part 1: EMF Specifications and Tolerances

3. TERMINOLOGY

3.1. Definitions are in accordance with ASTM F412, and abbreviations are in accordance with ASTM D1600, unless otherwise specified.

3.2. *Definitions of Terms Specific to This Standard:*

3.2.1. *local buckling*—local wrinkling resulting from compressive load in one or more elements of the wall section visible to the eye. When advanced, it may result in failure of the entire profile.

3.2.2. *period*—the length of a single repetition of the corrugation or rib pattern, defined as the distance from the centerline of a valley or liner element to the centerline of the adjacent valley or liner element (see Figure 1).

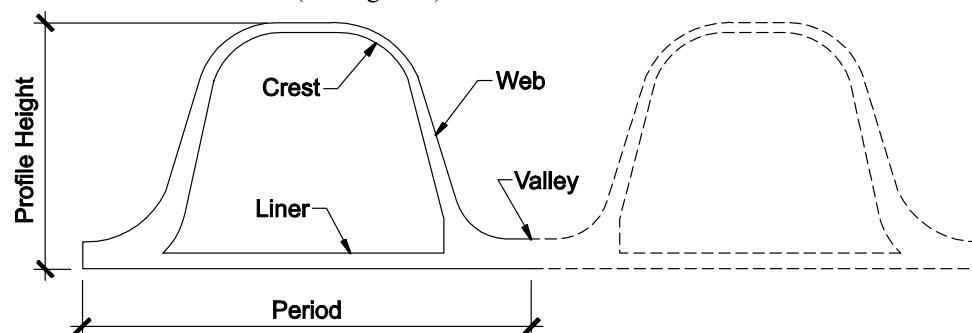


Figure 1—Typical Lined Profile Wall

3.2.3. *profile height*—the distance from the surface of the inside wall of the pipe (inner surface of the valley or liner element) to the surface of the outside wall of the pipe (outer surface of the crest or rib element in Figure 1). May also be determined as $(OD - ID)/2$.

3.2.4. *profile wall*—thin-walled pipe with corrugated or ribbed geometry.

4. SUMMARY OF TEST METHOD

4.1. A small sample of pipe wall is compressed between two rigid plates at a controlled rate. Both plates are fixed with respect to rotation. The sample has a longitudinal length of three periods and a chord (circumferential) length of 1.5 times the profile height. Load, displacement (of the load plates), and time data are obtained. The test ends when the ultimate load is exceeded and the level of load begins to decrease. The ultimate load, crosshead displacement at ultimate load, and test time at ultimate load are recorded.

5. SIGNIFICANCE AND USE

5.1. *The maximum load achieved in this test may be used for the following:*