



Standard Practice for Underground Installation of Thermoplastic Pressure Piping¹

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INTRODUCTION

In general, thermoplastics pressure piping materials behave as ductile materials under load, meaning that they can undergo considerable deformation without damage. Piping made from such materials has the ability to bend under a load without breaking and to deform in other ways, while offering continued resistance. This flexibility allows ductile thermoplastic pipe to activate through pipe deformation lateral soil forces which create a pipe/soil system capable of safely supporting—even in pipes subject to little or no internal pressure—the earth and superimposed loads which are encountered in most pipe installations. However, proper installation techniques are required to ensure that the necessary support at the bottom and passive soil pressures at the sides of the pipe are developed and maintained.

Soils in which trenches are dug shall be examined and identified and the trenches prepared and backfilled in accordance with sound bedding procedures and this practice.

1. Scope*

1.1 This practice governs procedures and references ASTM specifications for underground installation of thermoplastic pressure piping, 63-in. (1372-mm) nominal size and smaller. It is beyond the scope of this practice to describe these procedures in detail since it is recognized that significant differences exist in their implementation depending on kind and type of pipe material, pipe size and wall thickness, soil conditions, and the specific end use.

1.1.1 This practice assumes that over the range of anticipated operating conditions, including maximum external loading and minimum internal pressure, the soil/pipe system will offer sufficient structural stability to resist possible excessive diametrical deformation, or even collapse. In cases, particularly with large diameter thinner-walled pipe, for which the validity of this assumption may be in question, the selection of pipe and recommended installation conditions shall be determined by a qualified engineer.

1.1.2 Specific pipe characteristics and end-use requirements shall dictate addition to, or modification of the procedures stated or referenced herein.

1.2 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.

1.3 *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.* Specific precautionary statements are given in Sections 10 and 11.

2. Referenced Documents

2.1 *ASTM Standards:*²

D1600 Terminology for Abbreviated Terms Relating to Plastics

D2487 Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

D2488 Practice for Description and Identification of Soils (Visual-Manual Procedure)

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

F412 Terminology Relating to Plastic Piping Systems

F1668 Guide for Construction Procedures for Buried Plastic Pipe

2.2 *AWWA Standard:*

C 651 Standard for Disinfecting Water Mains³

3. Terminology

3.1 *Definitions:*

¹ This practice is under the jurisdiction of ASTM Committee F17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17.61 on Water.

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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 American Water Works Association (AWWA), 6666 W. Quincy Ave., Denver, CO 80235, <http://www.awwa.org>.