



Standard Test Method for Assembly Force of Plastic Underground Conduit Joints That Use Flexible Elastomeric Seals Located in the Bell¹

This standard is issued under the fixed designation F 1429; 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 the determination of the relative force required to assemble plastic underground conduit joints that use flexible elastomeric seals located in the bell.

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

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.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 695 Test Method for Compressing Properties of Rigid Plastics²

F 412 Terminology Relating to Plastic Piping Systems³

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *assembly force*—the peak force or effort required to insert the spigot into the belled end for gasketed conduit joining systems.

3.1.2 *chart recorder*—a device that records on paper (or similar permanent medium) the readings obtained by a physical testing machine, such as a compression tester. The chart recorder receives input from the testing machine in the form of electrical signals that are proportional to the test readings.

3.1.3 *gasketed conduit joining system*—a push-on conduit joining system (see joint, push-on in Terminology F 412) with the following three manufacturer-specified components that influence joint assembly force: (1) the elastomeric seal, (2) the

chamfer on the spigot, and (3) the joint lubricant. This system is as supplied or recommended by the conduit manufacturer.

4. Summary of Test Method

4.1 A sample of eight gasketed conduit bells of the same nominal diameter are prepared from typical production stock of the conduit manufacturer. An aluminum spigot mandrel made to the specifications of Annex A1 for the conduit size being tested is inserted into each of the eight gasketed conduit bell specimens by means of a compression tester and the joint system assembly force is recorded for each specimen. The mean and standard deviation of the sample of eight recorded assembly forces is then calculated and recorded.

4.2 Any variation in the type of gasket, spigot chamfer, or joint lubricant specified by the manufacturer constitutes a change in the gasketed conduit joining system and requires that a new sample of eight specimens be tested.

5. Significance and Use

5.1 The assembly force of a conduit joining system is one measure of the ease of which the conduit system can be assembled and installed in the field. This test method provides a means by which to quantify the assembly force of gasketed conduit joining systems. The results of the testing can be used to compare and categorize the assembly force of different designs of gasketed conduit joining systems.

5.2 This test method is not intended for use as a quality control test.

5.3 This test method can be used for comparison of gasketed conduit joining systems on the basis of assembly force. No information about joint sealing performance can be obtained from the use of this test method.

5.4 This test method covers all plastic conduit with push-on joints that use flexible elastomeric gaskets located in the bell to provide the joint seal.

5.5 This test method is also applicable to all fittings that are fabricated from conduit covered in 5.4 and that utilize the same type of push-on joints as the conduit covered in 5.4, and that are intended for use with the conduit types described in 5.4. For purposes of this test method, assembly force data obtained

¹ This test method is under the jurisdiction of ASTM Committee F-17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17.40 on Test Methods.

Current edition approved April 10, 1999. Published June 1999. Originally published F 1429 – 92. Last previous edition F 1429 – 92.

² *Annual Book of ASTM Standards*, Vol 08.01.

³ *Annual Book of ASTM Standards*, Vol 08.04.

