



Designation: C443 – 11

Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets¹

This standard is issued under the fixed designation C443; 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 specification covers flexible watertight joints for concrete pipe and precast manhole sections, using rubber gaskets for sealing the joints, where infiltration or exfiltration is a factor in the design. The specification covers the design of joints and the requirements for rubber gaskets to be used therewith, for pipe conforming in all other respects to Specification C14, Specification C76, or Specification C507 and precast manhole section conforming in all other respects to Specification C478, provided that if there is conflict in permissible variations in dimensions the requirements of this specification for joints shall govern.

1.2 A complete metric companion to Specification C443 has been developed—C443M; therefore, no metric equivalents are presented in this specification.

NOTE 1—This specification covers the design and performance of the rubber gasket joint only. Joints covered by this specification are normally adequate for hydrostatic pressures up to 13 psi (30 ft) without leakage, when tested in accordance with Section 9. Infiltration or exfiltration quantities for an installed pipeline are dependent upon many factors other than the joints, and allowable quantities must be covered by other specifications and suitable testing of the installed pipeline and system.

2. Referenced Documents

2.1 ASTM Standards:²

C14 Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe

C76 Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe

C478 Specification for Precast Reinforced Concrete Manhole Sections

C507 Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe

C822 Terminology Relating to Concrete Pipe and Related Products

C1619 Specification for Elastomeric Seals for Joining Concrete Structures

3. Terminology

3.1 *Definitions*—For definitions of terms relating to concrete pipe, see Terminology C822.

4. Basis of Acceptance

4.1 The acceptability of the pipe joints and gaskets shall be determined by the results of the physical tests prescribed in this specification, if and when required, and by inspection to determine whether the pipe joints and gaskets conform to this specification as to design and freedom from defects.

5. Materials and Manufacture for Gaskets

5.1 All rubber gaskets shall comply with Specification C1619 in terms of materials and manufacture. The gaskets shall be extruded or molded to the specified size within a tolerance of $\pm 6\%$ on any dimension, measured at any cross section.

6. Physical Requirements for Gaskets

6.1 *Standard Gasket Requirements*—All rubber gaskets shall meet the dimensions, tolerances, and physical requirements of Specification C1619, Class C.

6.2 *Oil Resistant Gasket Requirements*—All rubber gaskets shall meet the dimensions, tolerances, and physical requirements of Specification C1619, Class D.

7. Design of Joints

7.1 The manufacturer shall furnish the owner with the detailed design of the joint or joints including design and durometer hardness of the rubber gasket proposed to be furnished under this specification.

7.1.1 The joint design shall consist of a bell or groove on one end of a unit of pipe, and a spigot or tongue on the adjacent end of the joining pipe.

¹ This specification is under the jurisdiction of ASTM Committee C13 on Concrete Pipe and is the direct responsibility of Subcommittee C13.08 on Joints for Precast Concrete Structures.

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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.