



# Standard Specification for Non-Metallic Expansion Joints<sup>1</sup>

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*This standard has been approved for use by agencies of the U.S. Department of Defense.*

## 1. Scope

1.1 This specification provides the minimum requirements for construction, materials, performance, and dimensional requirements of arch-type non-metallic expansion joints.

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 The following safety hazards caveat pertains only to the test method described in this specification. *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:<sup>2</sup>

**A395/A395M** Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures

**D1418** Practice for Rubber and Rubber Latices—Nomenclature

### 2.2 Federal Standard:<sup>3</sup>

**Code of Federal Regulations, Title 30, Chapter I, Mine Safety and Health Administration**

### 2.3 ANSI Standards:<sup>4</sup>

**B16.1** Cast Iron Pipe Flanges and Flanged Fittings

**B16.5** Steel Pipe Flanges and Flanged Fittings

## B16.24 Bronze Flanges and Flanged Fittings

## 3. Terminology

### 3.1 Definitions:

3.1.1 *floating metallic flange type*—expansion joint having the tube, fabric plies, and cover brought up from the joint body to form a bead.

3.1.1.1 *Discussion*—This bead is molded into a groove in the metallic flange. Retaining rings are not required with this design.

3.1.2 *integral rubber flange type*—expansion joint having the tube, fabric plies, and cover brought up from the joint body to form a rubber flange.

3.1.2.1 *Discussion*—Additional plies or other reinforcement may be used in the flange to meet service conditions. Retaining rings must be used with this design.

3.1.3 *maximum allowable working pressure (MAWP)*—manufacturer's recommended maximum continuous operating pressure (lb/in.<sup>2</sup> (Pa)).

3.1.4 *non-metallic flanged expansion joint*—flexible connector fabricated from natural or synthetic rubber and fabrics, usually with metal reinforcement, to isolate vibration and noise and provide stress relief in piping systems caused by thermal changes and other system movements.

## 4. Ordering Information

4.1 Orders for products under this specification shall include the following information:

4.1.1 Inside diameter of connecting pipes (joint ID).

4.1.2 Face-to-face dimension that is the flange-to-flange dimension into which the expansion joint is to be installed.

4.1.3 Maximum and minimum operating pressure in pounds-force per square inch gage (pascals).

4.1.4 Maximum and minimum operating temperature in °F (°C).

4.1.5 Flange drilling in accordance with the appendix titled "Common Flange Dimension/Drilling Chart" of the *Technical Handbook on Rubber Expansion Joints and Flexible Pipe*

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.11 on Machinery and Piping Systems.

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<sup>2</sup> 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.

<sup>3</sup> Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, http://www.access.gpo.gov.

<sup>4</sup> Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.