Standard Specification for

Plain and Laminated Elastomeric Bridge Bearings

AASHTO Designation: M 251-06 (2020)

Technical Subcommittee: 4e, Joints, Bearings, and Geosynthetics

Release: Group 2 (June)



American Association of State Highway and Transportation Officials 555 12th Street NW, Suite 1000 Washington, DC 20004

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1. SCOPE

1.1. This specification covers the material requirements for plain and laminated elastomeric bridge bearings. Elastomeric bearings furnished under this specification shall adequately provide for thermal expansion and contraction, rotation, camber changes, and creep and shrinkage, where applicable, of structural members. Elastomeric bearings as herein defined shall include plain pads (consisting of elastomer only) and laminated bearings with steel or fabric laminates.

2. REFERENCED DOCUMENTS

2.1. *AASHTO Publications*:

- Standard Specifications for Highway Bridges
- AASHTO LRFD Bridge Design Specifications

2.2. *ASTM Standards*:

- A36/A36M, Standard Specification for Carbon Structural Steel
- A1011/A1011M, Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
- D412, Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
- D746, Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact
- D751, Standard Test Methods for Coated Fabrics
- D3183, Standard Practice for Rubber—Preparation of Pieces for Test Purposes from Products
- D4014, Standard Specification for Plain and Steel-Laminated Elastomeric Bearings for Bridges
- E4, Standard Practices for Force Verification of Testing Machines
- E29, Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

2.3. *ANSI Standard*:

■ ANSI B46.1, Surfaces and Surfacing

- **2.4**. The Association for Rubber Products Manufacturers (ARPM):¹
 - *The ARPM Rubber Handbook*TM *for Molded, Extruded, Lathe Cut and Cellular Products,* MO-1 (https://www.arpminc.com/publications/44)
 - Table 6—RMA Drawing Designation for Finish, RMA F2, Satin Finish
 - Table 6—RMA Drawing Designation for Finish, RMA F3, Commercial Finish
 - Table 7—RMA Drawing Designation for Flash Extension, RMA T 1.60 mm [T .063], Normal Tear Trim Tolerance

2.5. *The Society for Protective Coatings (SSPC) Specification:*²

■ SSPC-VIS 1-01, Visual Standard for Abrasive Blast Cleaned Steel

3. GENERAL REQUIREMENTS

- **3.1.** All bearings shall be designed in accordance with specifications contained in the latest edition of AASHTO's *Standard Specifications for Highway Bridges* or the *AASHTO LRFD Bridge Design Specifications*.
- **3.2.** The dimensions of the furnished bearings shall be the dimensions required by the design documents within the tolerances shown in Section 6 of this specification. The bearings shall be composed of the specified materials, shall be tested at the appropriate level, and shall satisfy any special requirements of the purchaser.
- **3.3.** The contractor shall provide the purchaser with written notification 30 days prior to the start of bearing production. This notification shall include the contract number, quantity, and size of bearings being produced, as well as the manufacturer's name, location, and the representative who will coordinate production, inspection, sampling, and testing with the purchaser.
- **3.4.** Testing for the physical properties of the elastomer may require the destruction of one or more bearings from a lot. In these instances, the cost of providing additional bearings for testing purposes shall be borne by the supplier.
- 3.5. At the owner's discretion, bearings specified by hardness and designed in accordance with Method A of the *AASHTO LRFD Bridge Design Specifications* or AASHTO's *Standard Specifications for Highway Bridges* may be tested and accepted in accordance with Appendix X1 in lieu of Section 8.
- **3.6.** In addition to material requirements for the bearing's individual components, this specification provides acceptance criteria for finished bearings.
- **3.7.** Perform calculations using significant digits in accordance with ASTM E29 using the rounding method for determining compliance to the specification requirements herein, unless otherwise specified by the purchaser.

4. MATERIALS

4.1. *Properties of the Elastomer*—The elastomer compound used in the construction of these bearings shall contain only virgin crystallization resistant polychloroprene (neoprene) or virgin natural polyisoprene (natural rubber) as the raw polymer. All materials shall be new with no reclaimed material incorporated in the finished bearing. The elastomer compounds shall be classified as being of low-temperature Grade 0, 2, 3, 4, or 5 as specified by the minimum grade requirements of Table 14.7.5.2-2, "Low Temperature Zones and Minimum Grade of Elastomer," of the *AASHTO LRFD Bridge Design Specifications*. Low temperature zones used in this table are as defined in Figure 14.7.5.2-1, "Temperature Zones," of the same publication.

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