



Designation: D8507 – 23

# Standard Specification for High Load Multi-Rotational Disc Bearings for Bridges and Structures<sup>1</sup>

This standard is issued under the fixed designation D8507; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This specification covers bridge bearings that consist of an unconfined polyether urethane rotational element subjected to compression loads, along with a resisting mechanism to transmit shear and/or tension loads through the bearing. For expansion and/or contraction applications, an additional stainless steel flat surface slides against a carbon steel plate faced with sheet polytetrafluoroethylene (PTFE). The function of the bearing is to transfer loads and to accommodate any relative movement, including rotation between a bridge superstructure and its supporting structure, or both.

1.2 The requirements stated in this specification are the minimums necessary for the manufacture of quality bearing devices. It may be necessary to increase these minimum values due to other design or construction conditions.

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

1.4 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

### 2.1 ASTM Standards:<sup>2</sup>

**A36/A36M** Specification for Carbon Structural Steel

**A240/A240M** Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications

**A572/A572M** Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel

**A588/A588M** Specification for High-Strength Low-Alloy Structural Steel, up to 50 ksi [345 MPa] Minimum Yield Point, with Atmospheric Corrosion Resistance

**A709/A709M** Specification for Structural Steel for Bridges

**D395** Test Methods for Rubber Property—Compression Set

**D412** Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension

**D638** Test Method for Tensile Properties of Plastics

**D792** Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement

**D2240** Test Method for Rubber Property—Durometer Hardness

**D4894** Specification for Polytetrafluoroethylene (PTFE) Granular Molding and Ram Extrusion Materials

**D4895** Specification for Polytetrafluoroethylene (PTFE) Resin Produced From Dispersion

### 2.2 AASHTO Standards:<sup>3</sup>

**AASHTO** Standard Specifications for Highway Bridges

**AASHTO LRFD** Bridge Design Specifications

**AASHTO LRFD** Bridge Construction Specifications

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

**C2.23** Specification for the Application of Thermal Spray Coatings (Metallizing) of Aluminum, Zinc, and Their Alloys and Composites for the Corrosion Protection of Steel

**D1.5 AASHTO/AWS** Bridge Welding Code

**D1.6 AWS** Structural Welding Code—Stainless Steel

### 2.4 AREMA Standards:<sup>5</sup>

**AREMA** Manual for Railway Engineering

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.32 on Bridges and Structures.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto: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 American Association of State Highway and Transportation Officials (AASHTO), 444 N. Capitol St., NW, Suite 249, Washington, DC 20001, <http://www.transportation.org>.

<sup>4</sup> Available from American Welding Society (AWS), 8669 NW 36 St., #130, Miami, FL 33166-6672, <http://www.aws.org>.

<sup>5</sup> Available from American Railway Engineering and Maintenance-of-Way Association (AREMA), 4501 Forbes Blvd., Suite 130, Lanham, MD 20706, <https://www.arena.org>.