



Standard Specification for Carbon and Alloy Steel Axles, Heat-Treated, for Mass Transit and Electric Railway Service¹

This standard is issued under the fixed designation A729/A729M; 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.

^{ε1} NOTE—Figs. 1 and 2 were corrected editorially in December 2015.

1. Scope*

1.1 This specification covers heat-treated carbon and alloy steel axles for mass transit and commuter cars in electric and locomotive hauled railway service.

1.2 This specification is for solid design roller bearing axles with machined bodies.

1.3 Various axle designs are used for this service including motor and non-motor with either inboard or outboard journals.

1.4 Supplementary requirements including those in the general requirements of Specification A788/A788M are provided for use when additional testing or inspection is desired. These shall apply only when specified individually by the purchaser in the order.

1.5 Unless the order specifies the applicable “M” specification designation, the axles shall be furnished to the inch-pound units.

1.6 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

2. Referenced Documents

2.1 ASTM Standards:²

A29/A29M Specification for General Requirements for Steel Bars, Carbon and Alloy, Hot-Wrought
A275/A275M Practice for Magnetic Particle Examination of Steel Forgings

A388/A388M Practice for Ultrasonic Examination of Steel Forgings

A788/A788M Specification for Steel Forgings, General Requirements

E112 Test Methods for Determining Average Grain Size

E381 Method of Macroetch Testing Steel Bars, Billets, Blooms, and Forgings

E1426 Test Method for Determining the X-Ray Elastic Constants for Use in the Measurement of Residual Stress Using X-Ray Diffraction Techniques

2.2 Other Standards:³

AAR Manual of Standards and Recommended Practices Wheels and Axles

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *class*—the set of chemical requirements for the steel to be used for the axles to be supplied.

3.1.2 *grade*—the designation of the specific set of mechanical properties selected for the axle(s) to be supplied. The grade is selected based on the axle design and service requirements.

3.2 Users of this specification are cautioned that the above terms may be used differently in other industry standards and purchaser ordering information. Producers and purchasers should ensure that both parties are in agreement regarding the specific mechanical and chemical requirements for the axles to be supplied.

4. Ordering Information

4.1 Material supplied to this specification shall conform to the requirements of Specification A788/A788M, which outlines ordering information, manufacturing requirements, testing and retesting methods and procedures, marking, certification, product analysis variations, and additional supplementary requirements.

4.1.1 If the requirements of this specification are in conflict with the requirements of Specification A788/A788M, then the requirements of this specification shall prevail.

³ Available from Association of American Railroads (AAR), 425 Third St., SW, Washington, DC 20024, <http://www.aar.org>.

¹ This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and is the direct responsibility of Subcommittee A01.06 on Steel Forgings and Billets.

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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.