



Designation: B199 – 17

Standard Specification for Magnesium-Alloy Permanent Mold Castings¹

This standard is issued under the fixed designation B199; 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 reappraisal. A superscript epsilon (ε) indicates an editorial change since the last revision or reappraisal.

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

1. Scope*

1.1 This specification covers magnesium alloy permanent mold casting alloys designated as shown in Table 1.

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

1.3 *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.*

1.4 *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 The following documents of the issue in effect on date of order acceptance form a part of this specification to the extent referenced herein:

2.2 *ASTM Standards:*²

B93/B93M Specification for Magnesium Alloys in Ingot Form for Sand Castings, Permanent Mold Castings, and Die Castings

B296 Practice for Temper Designations of Magnesium Alloys, Cast and Wrought

B557 Test Methods for Tension Testing Wrought and Cast Aluminum- and Magnesium-Alloy Products

B660 Practices for Packaging/Packing of Aluminum and

Magnesium Products

B661 Practice for Heat Treatment of Magnesium Alloys

B951 Practice for Codification of Unalloyed Magnesium and Magnesium-Alloys, Cast and Wrought

B953 Practice for Sampling Magnesium and Magnesium Alloys for Spectrochemical Analysis

B954 Test Method for Analysis of Magnesium and Magnesium Alloys by Atomic Emission Spectrometry

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E88 Practice for Sampling Nonferrous Metals and Alloys in Cast Form for Determination of Chemical Composition

E94 Guide for Radiographic Examination

E155 Reference Radiographs for Inspection of Aluminum and Magnesium Castings

E165 Practice for Liquid Penetrant Examination for General Industry

E527 Practice for Numbering Metals and Alloys in the Unified Numbering System (UNS)

2.3 *Federal Standards:*

Fed. Std. No. 123 Marking for Shipment (Civil Agencies)³

2.4 *Aerospace Materials Specification:*⁴

AMS 2768 Heat Treatment of Magnesium Alloy Castings

3. Terminology

3.1 *Definitions:*

3.1.1 *permanent mold casting, n*—a metal object produced by introducing molten metal by gravity or low pressure into a mold constructed of durable material, usually iron or steel, and allowing it to solidify.

3.1.2 *semipermanent mold casting, n*—a permanent mold casting which is made using an expendable core such as bonded sand.

4. Ordering Information

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

¹ This specification is under the jurisdiction of ASTM Committee B07 on Light Metals and Alloys and is the direct responsibility of Subcommittee B07.04 on Magnesium Alloy Cast and Wrought Products.

Current edition approved May 1, 2017. Published May 2017. Originally approved in 1945. Last previous edition approved in 2012 as B199 – 12. DOI: 10.1520/B0199-17.

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.

³ Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, <http://www.dodssp.daps.mil>.

⁴ Available from SAE International (SAE), 400 Commonwealth Dr., Warrendale, PA 15096-0001, <http://www.sae.org>.

*A Summary of Changes section appears at the end of this standard