



Standard Specification for Aluminum-Alloy Die Castings¹

This standard is issued under the fixed designation B85/B85M; 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.

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

1. Scope*

1.1 This specification covers aluminum-alloy die castings of all compositions. Thirteen of the most commonly die cast alloy compositions are specified, designated as shown in [Table 1](#).

1.2 This specification is not intended for aluminum-alloy die castings used in aerospace applications.

1.3 Alloy and temper designations are in accordance with ANSI H35.1/H35.1(M). The equivalent unified numbering system alloy designations are in accordance with Practice [E527](#).

1.4 Unless the order specifies the “M” specification designation, the material shall be furnished to the inch-pound units.

1.5 For acceptance criteria for inclusion of new aluminum and aluminum alloys and their properties in this specification, see [Annex A1](#) and [Annex A2](#).

1.6 *Units*—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.

1.7 *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 requirements prior to use.*

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

- [B179](#) Specification for Aluminum Alloys in Ingot and Molten Forms for Castings from All Casting Processes
- [B275](#) Practice for Codification of Certain Nonferrous Metals and Alloys, Cast and Wrought
- [B557](#) Test Methods for Tension Testing Wrought and Cast Aluminum- and Magnesium-Alloy Products
- [B557M](#) Test Methods for Tension Testing Wrought and Cast Aluminum- and Magnesium-Alloy Products (Metric)
- [B660](#) Practices for Packaging/Packing of Aluminum and Magnesium Products
- [B881](#) Terminology Relating to Aluminum- and Magnesium-Alloy Products
- [B985](#) Practice for Sampling Aluminum Ingots, Billets, Castings and Finished or Semi-Finished Wrought Aluminum Products for Compositional Analysis
- [D3951](#) Practice for Commercial Packaging
- [E8/E8M](#) Test Methods for Tension Testing of Metallic Materials
- [E23](#) Test Methods for Notched Bar Impact Testing of Metallic Materials
- [E29](#) Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications
- [E34](#) Test Methods for Chemical Analysis of Aluminum and Aluminum-Base Alloys
- [E505](#) Reference Radiographs for Inspection of Aluminum and Magnesium Die Castings
- [E527](#) Practice for Numbering Metals and Alloys in the Unified Numbering System (UNS)
- [E607](#) Test Method for Atomic Emission Spectrometric Analysis Aluminum Alloys by the Point to Plane Technique Nitrogen Atmosphere (Withdrawn 2011)³
- [E716](#) Practices for Sampling and Sample Preparation of Aluminum and Aluminum Alloys for Determination of Chemical Composition by Spectrochemical Analysis
- [E1251](#) Test Method for Analysis of Aluminum and Aluminum Alloys by Spark Atomic Emission Spectrometry

¹ This specification is under the jurisdiction of ASTM Committee [B07](#) on Light Metals and Alloys and is the direct responsibility of Subcommittee [B07.01](#) on Aluminum Alloy Ingots and Castings.

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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.

³ The last approved version of this historical standard is referenced on www.astm.org.

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