



Designation: B 85 – 99

AMERICAN SOCIETY FOR TESTING AND MATERIALS
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Standard Specification for Aluminum-Alloy Die Castings¹

This standard is issued under the fixed designation B 85; 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 Department of Defense.

1. Scope

1.1 This specification covers aluminum-alloy die castings. Ten alloy compositions are specified, designated as shown in Table 1.

1.2 For acceptance criteria for inclusion of new aluminum and aluminum alloys and their properties in this specification, see Annex A1 and Annex A2.

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.

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:

B 179 Specification for Aluminum Alloys in Ingot Form for Castings from all Casting Processes²

B 275 Practice for Codification of Certain Nonferrous Metals and Alloys, Cast and Wrought²

B 660 Practices for Packaging/Packing of Aluminum and Magnesium Products²

E 8 Test Methods for Tension Testing of Metallic Materials³

E 23 Test Methods for Notched Bar Impact Testing of Metallic Materials³

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications⁴

E 34 Test Methods for Chemical Analysis of Aluminum and Aluminum-Base Alloys⁵

E 88 Practice for Sampling Nonferrous Metals and Alloys in Cast Form for Determination of Chemical Composition⁵

E 101 Test Method for Spectrographic Analysis of Aluminum and Aluminum Alloys by the Point-to-Plane Technique⁶

E 227 Test Method for Optical Emission Spectrometric

Analysis of Aluminum and Aluminum Alloys by the Point-to-Plane Technique⁵

E 505 Reference Radiographs for Inspection of Aluminum and Magnesium Die Castings⁷

E 527 Practice for Numbering Metals and Alloys (UNS)⁸

E 607 Test Method for Optical Emission Spectrometric Analysis of Aluminum and Aluminum Alloys by the Point-to-Plane Technique, Nitrogen Atmosphere⁹

E 716 Practices for Sampling Aluminum and Aluminum Alloys for Spectrochemical Analysis⁹

E 1251 Test Method for Optical Emission Spectrometric Analysis of Aluminum and Aluminum Alloys by the Argon Atmosphere, Point-to-Plane, Unipolar Self-Initiating Capacitor Discharge⁹

2.3 ANSI Standard:

H35.1 Alloy and Temper Designation Systems for Aluminum²

2.4 NADCA Product Specification Standards for Die Castings:

Standards S-4-1-94 to S-4-1-8-94, P-4-1-94 to P-4-1-7-94, S/P-4-9-94, and G-6-1-94 to G-6-7-94²

2.5 Federal Standards:

Fed. Std. No. 123 Marking for Shipment (Civil Agencies)¹⁰

Fed. Std. No. 184 Identification Marking of Aluminum, Magnesium and Titanium¹⁰

2.6 Military Standard:

MIL-STD-129 Marking for Shipment and Storage (Military Agencies)¹⁰

3. Terminology

3.1 Definitions:

3.1.1 *die casting*—a metal object produced by the introduction of molten metal under substantial pressure into a metal die and characterized by a high degree of fidelity to the die cavity.

4. Ordering Information

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

4.1.1 This specification designation (which includes the

¹ This specification is under the jurisdiction of ASTM Committee B-7 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 Annual Book of ASTM Standards, Vol 02.02.

³ Annual Book of ASTM Standards, Vol 03.01.

⁴ Annual Book of ASTM Standards, Vol 14.02.

⁵ Annual Book of ASTM Standards, Vol 03.05.

⁶ Discontinued. See 1995 Annual Book of ASTM Standards, Vol 03.05.

⁷ Annual Book of ASTM Standards, Vol 03.03.

⁸ Annual Book of ASTM Standards, Vol 01.01.

⁹ Annual Book of ASTM Standards, Vol 03.06.

¹⁰ Available from Standardization Documents Order Desk, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.