



Standard Specification for Zinc and Zinc-Aluminum (ZA) Alloy Foundry and Die Castings¹

This standard is issued under the fixed designation B86; 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 commercial zinc, zinc-aluminum castings and continuous cast bar stock, as designated and specified in [Table 1](#). Seven alloy compositions are specified and designated as follows:

Common	Traditional	ASTM ^A	UNS
Alloy 3	Zamak 3	AG 40A ^B	Z33525
Alloy 7	Zamak 7	AG 40B	Z33527
Alloy 5	Zamak 5	AC 41A ^B	Z35533
Alloy 2	Zamak 2	AC 43A	Z35545
ZA-8	ZA-8	...	Z35638
ZA-12	ZA-12	...	Z35633
ZA-27	ZA-27	...	Z35841

^A See [Table 1](#), Footnote C.

^B SAE Specification, Nos. 903 and 925 conform to the requirements for alloys AG40A and AC41A, respectively.

1.2 Zinc Alloys Z33525, Z33527, Z35533, and Z35545 are used primarily in the manufacture of pressure die castings. Zinc-Aluminum Alloys Z35638, Z35633, and Z35841 are used in the manufacture of both foundry and pressure die castings. These alloys are also fabricated into continuous cast bar stock used for prototyping and screw machine stock.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.4 Systems of nomenclature used to designate zinc and zinc-aluminum (ZA) alloys used for casting are described in [Appendix X1](#).

1.5 *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 become familiar with all hazards including those identified in the appropriate Material Safety Data Sheet (MSDS) for this product/material*

as provided by the manufacturer, to establish appropriate safety and health practices, and determine the applicability of regulatory limitations 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

[B240 Specification for Zinc and Zinc-Aluminum \(ZA\) Alloys in Ingot Form for Foundry and Die Castings](#)

[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](#)

[B899 Terminology Relating to Non-ferrous Metals and Alloys](#)

[B949 Specification for General Requirements for Zinc and Zinc Alloy Products](#)

[E8 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](#)

[E88 Practice for Sampling Nonferrous Metals and Alloys in Cast Form for Determination of Chemical Composition](#)

[E527 Practice for Numbering Metals and Alloys in the Unified Numbering System \(UNS\)](#)

[E536 Test Methods for Chemical Analysis of Zinc and Zinc Alloys](#)

[E634 Practice for Sampling of Zinc and Zinc Alloys by Spark Atomic Emission Spectrometry](#)

2.3 North American Die Casting Association (NADCA):³

[NADCA Product Specification Standards for Die Castings](#)

¹ This specification is under the jurisdiction of ASTM Committee B02 on Nonferrous Metals and Alloys and is the direct responsibility of Subcommittee B02.04 on Zinc and Cadmium.

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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 Available from North American Die Casting, Assn., 2000 5th Ave., River Grove, IL 60171, <http://www.diecasting.org>.