



Designation: B 91 – 97

Standard Specification for Magnesium-Alloy Forgings¹

This standard is issued under the fixed designation B 91; 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 Department of Defense.

1. Scope *

1.1 This specification covers magnesium alloy forgings designated as shown in Table 1.

1.2 The values stated in inch-pound units are the standard. The SI values in parentheses are provided for information only.

2. Referenced Documents

2.1 The following documents of the issue in effect on date of material purchase form a part of this specification to the extent referenced herein:

2.2 ASTM Standards:

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

B 557 Test Methods of Tension Testing Wrought and Cast Aluminum- and Magnesium-Alloy Products²

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

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications³

E 35 Test Methods for Chemical Analysis of Magnesium and Magnesium Alloys⁴

E 55 Practice for Sampling Wrought Nonferrous Metals and Alloys for Determination of Chemical Composition⁴

2.3 Federal Standards:

No. 123 Marking for Shipment (Civil Agencies)⁵

No. 184 Identification Marking of Aluminum, Magnesium, and Titanium.

2.4 Military Standards:

MIL-M-3171 Magnesium Alloy, Processes for Pretreatment and Prevention of Corrosion on

MIL-STD-129 Marking for Shipment and Storage⁵

3. Terminology

3.1 Definitions:

¹ This specification is under the jurisdiction of ASTM Committee B-7 on Light Metals and Alloys and is the direct responsibility of Subcommittee B07.04 on Magnesium Alloy Cast and Wrought Products.

Current edition approved Oct. 10, 1997. Published May 1998. Originally published as B 91 – 32 T. Last previous edition B 91 – 92.

² Annual Book of ASTM Standards, Vol 02.02.

³ Annual Book of ASTM Standards, Vol 14.02.

⁴ Annual Book of ASTM Standards, Vol 03.05.

⁵ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

3.1.1 *forging*—a metal part worked to a predetermined shape by one or more such processes as hammering, upsetting, pressing, or rolling.

3.1.2 *die forging*—a forging formed to the required shape and size by working in impression dies.

3.1.3 *hammer forging*—a forging produced by repeated blows in a forging hammer.

3.1.4 *hand forging*—a forging worked between flat or simply shaped dies by repeated strokes or blows and manipulation of the piece.

4. Ordering Information

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

4.1.1 Quantity of each forging,

4.1.2 Alloy (Section 6 and Table 1),

4.1.3 Temper (Section 7 and Table 2),

4.1.4 Drawing showing dimensions of all die forgings and for all hand forgings not simple disks, rounds, squares, or rectangles (the amount of stock left for machine finish should be indicated),

4.1.5 Surface treatment (see 9.1),

4.1.6 Whether inspection is required at the manufacturer's works (see 10.1),

4.1.7 Special inspection requirements (see 10.2),

4.1.8 Whether certification is required (see 12.1), and

4.1.9 Whether marking for identification is required (see 13.1).

5. Quality Assurance

5.1 The manufacturer shall be responsible for the performance of all inspection and tests required by this specification, prior to shipment of the material.

6. Chemical Composition

6.1 *Limits*—The material shall conform to the chemical composition limits prescribed in Table 1. The manufacturer shall determine conformance by analyzing samples taken when the ingots are poured, or by analyzing samples taken from the finished or semifinished product. If the manufacturer has determined the chemical composition during the course of manufacture, he shall not be required to sample and analyze the finished product.

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