



Standard Specification for Magnesium-Alloy Investment Castings¹

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

1. Scope *

1.1 This specification covers magnesium-alloy investment castings designated as shown in Table 1.

1.2 Alloy designations are in accordance with Practices B 275 and E 527; temper designations are in accordance with Practice B 296.

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

2. Referenced Documents

2.1 The following documents of the issue in effect on the date of order acceptance 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 296 Practice for Temper Designations of Magnesium 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

B 661 Practice for Heat Treatment of Magnesium Alloys²

B 666/B 666M Practice for Identification Marking of Aluminum and Magnesium Products²

D 3951 Practice for Commercial Packaging³

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

E 35 Test Methods for Chemical Analysis of Magnesium and Magnesium Alloys⁵

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

E 94 Guide for Radiographic Testing⁶

E 155 Reference Radiographs for Inspection of Aluminum and Magnesium Castings⁶

E 165 Practice for Liquid Penetrant Examination⁶

E 527 Practice for Numbering Metals and Alloys (UNS)⁷

2.3 Federal Standards:

Fed. Std. No. 123 Marking for Shipping (Civil Agencies)⁸

2.4 Military Standards:

MIL-STD-129 Marking for Shipment and Storage (Military Agencies)⁸

3. Ordering Information

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

3.1.1 Quantity of each casting,

3.1.2 Alloy (Section 6 and Table 1),

3.1.3 Temper (see 5.1 and Table 2),

3.1.4 Casting drawing giving all necessary dimensions and showing amount of finish left for machining,

3.1.5 Surface treatment (see 10.1),

3.1.6 Whether certification is required (see 11.1),

3.1.7 Whether inspection is required at the manufacturer's works (see 12.1), and

3.1.8 Special inspection requirements (see 12.3).

4. Materials and Manufacture

4.1 The responsibility for furnishing castings that can be laid out and machined to the finished dimensions within the permissible variations specified, as shown on the drawings, shall rest with the manufacturer, except where mold equipment is furnished by the purchaser. Sufficient stock shall be allowed for shrinkage and, where required, for finishing; but castings of excessive weight shall not be furnished.

5. Treatment

5.1 The castings may be subjected to such heat treatment as the manufacturer desires to produce material that will conform to the requirements specified. Heat treatment shall be performed on the whole of the casting, never on a part only, and

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² Annual Book of ASTM Standards, Vol 02.02.

³ Annual Book of ASTM Standards, Vol 15.09.

⁴ Annual Book of ASTM Standards, Vol 14.02.

⁵ Annual Book of ASTM Standards, Vol 03.05.

⁶ Annual Book of ASTM Standards, Vol 03.03.

⁷ Annual Book of ASTM Standards, Vol 01.01.

⁸ Available from Standardization Documents Order Desk, Bldg. 4 Section D700 Robbins Ave., Philadelphia, PA 19111-5098, Attn: NPODS.