



AEROSPACE MATERIAL SPECIFICATION

AMS4490™**REV. K**Issued 1940-01
Revised 2017-05

Superseding AMS4490J

Magnesium Alloy Castings, Die
9.0Al - 0.70Zn (AZ91D, Temper F)
As Cast
(Composition similar to UNS M11916)

RATIONALE

AMS4490K revises Chemical Analysis Specimens (3.4), Reports (4.5.1), Identification (5.1.2), and Protective Treatment (5.2), and is a Five Year Review and update of this specification.

1. SCOPE

1.1 Form

This specification covers a magnesium alloy in the form of die castings.

1.2 Application

These castings have been used typically for applications where light weight, near net shape components are desired without a need for high strength, or soundness, but usage is not limited to such applications.

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS2475	Protective Treatments Magnesium Alloys
AMS2694	In-Process Welding of Castings
AMS2804	Identification Castings
ARP1917	Clarification of Terms Used in Aerospace Metals Specifications

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2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM B557	Tension Testing Wrought and Cast Aluminum- and Magnesium Alloy Products
ASTM B660	Packaging/Packing of Aluminum and Magnesium Products
ASTM B953	Sampling Magnesium and Magnesium Alloys for Spectrochemical Analysis
ASTM B954	Analysis of Magnesium and Magnesium Alloys by Atomic Emission Spectrometry
ASTM E21	Elevated Temperature Tension Tests of Metallic Materials
ASTM E505	Reference Radiographs for Inspection of Aluminum and Magnesium Die Castings
ASTM E1417/E1417M	Fluorescent Penetrant Testing
ASTM E1742/E1742M	Radiograph Examination

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall conform to the percentages by weight shown in Table 1, determined by spectrochemical methods in accordance with ASTM B954 or by other analytical methods acceptable to purchaser:

Table 1 - Composition

Element	min	max
Aluminum	8.3	9.7
Manganese (3.1.1)	0.15	0.50
Zinc	0.35	1.0
Silicon	--	0.10
Copper	--	0.030
Nickel	--	0.002
Iron (3.1.2)	--	0.005
Other Elements, each	--	0.02
Other Elements, total	--	0.30
Magnesium	remainder	