



<b>AEROSPACE MATERIAL SPECIFICATION</b>	<b>AMS4323™</b>	<b>REV. E</b>
	Issued 1988-10 Reaffirmed 2008-05 Revised 2025-04	
Superseding AMS4323D		
Aluminum Alloy, Hand Forgings, 5.6Zn - 2.5Mg - 1.6Cu - 0.23Cr (7075-T7452), Solution Heat Treated, Stress Relieved, and Precipitation Heat Treated (Composition similar to UNS A97075)		

### RATIONALE

AMS4323E results from a Five-Year Review and update of this specification with changes to update standard language related to unauthorized exceptions (see 3.3.1.2, 4.4.1, and 8.6), relocate Definitions (see 2.4) and update Applicable Documents (see Section 2) and metric reference thickness values for consistency with Note 8.4 (see Table 2B).

#### 1. SCOPE

##### 1.1 Form

This specification covers an aluminum alloy in the form of hand forgings up to 6 inches (152 mm), inclusive, in nominal as-forged thickness and having a cross-sectional area of not more than 156 square inches (1006 cm<sup>2</sup>) (see 8.7).

##### 1.2 Application

These forgings have been used typically for parts requiring a high level of mechanical properties and good resistance to stress-corrosion cracking, 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](http://www.sae.org).

AMS2355 Quality Assurance, Sampling and Testing, Aluminum Alloys and Magnesium Alloy, Wrought Products (Except Forging Stock), and Rolled, Forged, or Flash Welded Rings

AMS2772 Heat Treatment of Aluminum Alloy Raw Materials

SAE Executive Standards Committee Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2025 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, or used for text and data mining, AI training, or similar technologies, without the prior written permission of SAE.

**TO PLACE A DOCUMENT ORDER:** Tel: 877-606-7323 (inside USA and Canada)  
Tel: +1 724-776-4970 (outside USA)  
Fax: 724-776-0790  
Email: [CustomerService@sae.org](mailto:CustomerService@sae.org)  
http://www.sae.org

SAE WEB ADDRESS:

For more information on this standard, visit  
<https://www.sae.org/standards/content/AMS4323E/>

AMS2808 Identification, Forgings

AS7766 Terms Used in Aerospace Metals Specifications

## 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](http://www.astm.org).

ASTM B594 Ultrasonic Inspection of Aluminum-Alloy Wrought Products

ASTM B660 Packaging/Packing of Aluminum and Magnesium Products

ASTM E10 Brinell Hardness of Metallic Materials

ASTM G47 Determining Susceptibility to Stress-Corrosion Cracking of 2XXX and 7XXX Aluminum Alloy Products

## 2.3 ANSI Accredited Publications

Copies of these documents are available online at <https://webstore.ansi.org/>.

ANSI H35.1/H35.1M Alloy and Temper Designation Systems for Aluminum

## 2.4 Definitions

Terms used in AMS are defined in AS7766.

# 3. TECHNICAL REQUIREMENTS

## 3.1 Composition

Shall conform to the percentages by weight shown in Table 1, determined in accordance with AMS2355.

**Table 1 - Composition**

Element	Min	Max
Zinc	5.1	6.1
Magnesium	2.1	2.9
Copper	1.2	2.0
Chromium	0.18	0.28
Iron	--	0.50
Silicon	--	0.40
Manganese	--	0.30
Titanium	--	0.20
Other Impurities, each	--	0.05
Other Impurities, total	--	0.15
Aluminum	remainder	

## 3.2 Condition

Solution heat treated, stress relieved by compressing to produce a permanent set of 1 to 5%, and precipitation heat treated (see 8.3) to the -T7452 temper (refer to ANSI H35.1/H35.1M). Heat treatments shall be performed in accordance with AMS2772.

### 3.3 Properties

Forgings shall conform to the following requirements, determined in accordance with AMS2355:

#### 3.3.1 Tensile Properties

Shall be as specified in Table 2, determined on specimens machined from forgings not over 6 inches (152 mm) in nominal as-forged thickness and having an essentially rectangular or square cross section not exceeding 156 square inches (1006 cm<sup>2</sup>) in area and heat treated in the indicated thickness.

**Table 2A - Minimum tensile properties, inch/pound units**

Nominal Thickness at Time of Heat Treatment Inches	Specimen Orientation	Tensile Strength ksi	Yield Strength at 0.2% Offset ksi	Elongation in 4D %
Up to 2, incl	Longitudinal	71.0	61.0	9
	Long-Trans.	69.0	58.0	5
Over 2 to 3, incl	Longitudinal	71.0	61.0	9
	Long-Trans.	69.0	58.0	5
	Short-Trans.	67.0	54.0	4
Over 3 to 4, incl	Longitudinal	69.0	58.0	9
	Long-Trans.	68.0	56.0	5
	Short Trans.	66.0	51.0	4
Over 4 to 5, incl	Longitudinal	65.0	54.0	8
	Long-Trans.	64.0	52.0	5
	Short-Trans.	63.0	49.0	4
Over 5 to 6, incl	Longitudinal	63.0	51.0	8
	Long-Trans.	61.0	49.0	5
	Short-Trans.	60.0	46.0	4

**Table 2B - Minimum tensile properties, SI units**

Nominal Thickness at Time of Heat Treatment Millimeters	Specimen Orientation	Tensile Strength MPa	Yield Strength at 0.2% Offset MPa	Elongation in 4D %
Up to 50, incl	Longitudinal	490	420	9
	Long-Trans.	476	400	5
Over 50 to 76, incl	Longitudinal	490	420	9
	Long-Trans.	476	400	5
	Short-Trans.	462	372	4
Over 76 to 102, incl	Longitudinal	476	400	9
	Long-Trans.	469	386	5
	Short-Trans.	455	352	4
Over 102 to 127, incl	Longitudinal	448	372	8
	Long-Trans.	441	359	5
	Short-Trans.	434	338	4
Over 127 to 152, incl	Longitudinal	434	351	8
	Long-Trans.	420	338	5
	Short-Trans.	414	317	4

3.3.1.1 The axis of longitudinal specimens in area of gauge length shall vary not more than 15 degrees from parallel to the forging flow lines. The axis of transverse specimens in area of gauge length shall vary not more than 15 degrees from perpendicular to the forging flow lines.

3.3.1.2 Mechanical properties outside the range covered by 1.1 shall be agreed upon between the purchaser and producer and reported per 4.4.1 (see 8.7).

### 3.3.2 Stress-Corrosion Resistance

Forgings shall meet the conductivity test of 3.3.2.1 and shall exhibit no evidence of stress-corrosion cracking when tested in accordance with 3.3.2.2. The test of 3.3.2.2 need not be performed on forgings meeting the requirements of 3.3.2.1.1 or 3.3.2.1.2.

#### 3.3.2.1 Conductivity

Shall be as follows, determined in accordance with AMS2355:

- 3.3.2.1.1 If the conductivity is 40.0% IACS (International Annealed Copper Standard) (23.2 MS/m) or higher and longitudinal tensile properties meet specified requirements, the forgings are acceptable.
- 3.3.2.1.2 If the conductivity is 38.0 to 39.9% IACS (22.0 to 23.1 MS/m), if the longitudinal tensile properties meet specified requirements, and if the longitudinal yield strength does not exceed the specified minimum by more than 11.9 ksi (82 MPa), the forgings are acceptable.
- 3.3.2.1.3 If the conductivity is between 38.0 to 39.9% IACS (22.0 to 23.1 MS/m) and the longitudinal yield strength exceeds the specified minimum value by more than 11.9 ksi (82 MPa), the forgings shall be given additional precipitation heat treatment. If, after such treatment, the forgings meet the requirements of 3.3.1 and 3.3.2.1.1 or 3.3.2.1.2, the forgings are acceptable.
- 3.3.2.1.4 If the conductivity is below 38.0% IACS (22.0 MS/m), the forgings are not acceptable but may be reheat treated to meet specified requirements.

#### 3.3.2.2 Stress-Corrosion Cracking Resistance

Specimens cut from forgings shall show no evidence of stress-corrosion cracking when stressed in the short-transverse direction at 35.0 ksi (241 MPa) for forgings 3.0 inches (76.2 mm) and under in least section thickness or to 50% of the specified minimum longitudinal yield strength for forgings over 3.0 inches (76.2 mm) in section thickness as tested in accordance with ASTM G47.

### 3.4 Quality

Forgings, as received by the purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from imperfections detrimental to usage of the forgings.

- 3.4.1 All forgings shall be subjected to ultrasonic inspection in accordance with ASTM B594 and shall meet ultrasonic Class A.

### 3.5 Exceptions

Any exceptions shall be authorized by the purchaser and reported as in 4.4.1.

## 4. QUALITY ASSURANCE PROVISIONS

### 4.1 Responsibility for Inspection

The producer of forgings shall supply all samples for the producer's tests and shall be responsible for the performance of all required tests. The purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the forgings conform to specified requirements.