



AEROSPACE MATERIAL SPECIFICATION

AMS4126™**REV. E**

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Revised 2025-04

Superseding AMS4126D

Aluminum Alloy, Die and Hand Forgings and Rolled Rings,
5.6Zn - 2.5Mg - 1.6Cu - 0.23Cr (7075-T6),
Solution and Precipitation Heat Treated
(Composition similar to UNS A97075)

RATIONALE

AMS4126E results from a Five-Year Review and update of this specification with changes to remove obsolete weight criteria from Ultrasonic Inspection (see 3.4.1), update wording to prohibit unauthorized exceptions (see 3.3.1.1.5 and 8.5), relocate Definitions (see 2.4), and update Applicable Documents (see Section 2) and Ordering Information (see 8.6).

1. SCOPE

1.1 Form

This specification covers an aluminum alloy in the form of die forgings 4 inches (102 mm) and under in nominal thickness at time of heat treatment, hand forgings up to 6 inches (152 mm), inclusive, in as-forged thickness, rolled rings with wall thickness up to 3.5 inches (89 mm), inclusive, and stock of any size for forging or rolled rings (see 8.6).

1.2 Application

These products have been used typically for applications requiring high strength in light-to-medium sections, but usage is not limited to such applications.

1.2.1 Certain design and processing procedures may cause these products to become susceptible to stress-corrosion cracking; ARP823 recommends practices to minimize such conditions.

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.

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Documents

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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.

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
AMS2808	Identification, Forgings
ARP823	Minimizing Stress-Corrosion Cracking in Wrought High-Strength Aluminum Alloy Products
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.

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 E1417/E1417M	Liquid Penetrant Testing

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
ANSI H35.2	Dimensional Tolerances for Aluminum Mill Products
ANSI H35.2M	Dimensional Tolerances for Aluminum Mill Products (Metric)

2.4 Definitions

Terms used in AMS are defined in AS7766 and the following:

2.4.1 DIE FORGING

A forging shaped by working stock in closed dies.

2.4.2 HAND FORGING

A forging worked between flat or simply shaped dies by repeated strokes or blows and manipulation of the piece, intending to convert the metallurgical structure from cast to wrought prior to machining into a final part.

2.4.3 ROLLED RING

A cylindrical product of relatively short height circumferentially rolled from a hollow section.

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

3.2 Condition

Shall be as follows:

3.2.1 Die Forgings, Hand Forgings, and Rolled Rings

Solution and precipitation heat treated in accordance with AMS2772 to the -T6 temper (refer to ANSI H35.1/H35.1M).

3.2.2 Stock for Forging or Rolled Rings

As ordered by the forging or rolled-ring manufacturer (see 8.6).

3.3 Properties

The product shall conform to the manufacturing method (see 2.4 and 8.6) and the following requirements, determined on the requested mill product in accordance with AMS2355:

3.3.1 Die Forgings, Hand Forgings, and Rolled Rings

3.3.1.1 Tensile Properties

Shall be as follows:

3.3.1.1.1 Die Forgings

3.3.1.1.1.1 With Grain Flow

Specimens, machined from forgings 4 inches (102 mm) and under in nominal thickness at time of heat treatment or from integral prolongations on such forgings, with axis of specimen in area of gauge length varying not more than 15 degrees from parallel to the forging flow lines, shall have the properties shown in Table 2 provided the as-forged thickness is not more than twice the heat-treated thickness.