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Superseding AMS 4123G

Aluminum Alloy, Rolled or Cold Finished Bars and Rods
(7075-T651)
Solution and Precipitation Heat Treated
(Composition similar to UNS A97075)

RATIONALE

This document has been reaffirmed to comply with the SAE five-year review policy.

1. SCOPE:

1.1 Form:

This specification covers an aluminum alloy in the form of bars and rods.

1.2 Application:

These products have been used typically for machined parts subject to excessive warpage during machining due to residual stresses and for parts requiring high strength and whose fabrication does not involve welding or forming, 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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on this Technical Report, please visit
<http://www.sae.org/technical/standards/AMS4123H>**

SAE WEB ADDRESS:

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or www.sae.org.

AMS 2355	Quality Assurance Sampling and Testing, Aluminum Alloys and Magnesium Alloys, Wrought Products, Except Forging Stock, and Rolled, Forged, or Flash Welded Rings
AMS 2772	Heat Treatment of Aluminum Alloy Raw Materials
ARP823	Minimizing Stress-Corrosion Cracking in Wrought Heat-Treatable Aluminum Alloy Products
AS 1990	Aluminum Alloy Tempers

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959 or www.astm.org.

ASTM B 660	Packing/Packaging of Aluminum and Magnesium Products
ASTM B 666/B666M	Identification Marking of Aluminum and Magnesium Products

2.3 ANSI Publications:

Available from ANSI, 25 West 43rd Street, New York, NY 10036 or www.ansi.org.

ANSI H35.2/H35.2M	Dimensional Tolerances for Aluminum Mill Products
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3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall conform to the percentages by weight shown in Table 1, determined in accordance with AMS 2355.

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:

Rolled or cold finished, solution heat treated, stress-relieved by stretching to produce a nominal permanent set of 1-1/2% but not less than 1% nor more than 3% and precipitation heat treated. Heat treatments shall be performed in accordance with AMS 2772 (See AS 1990).

3.2.1 Product shall receive no further straightening operations after stretching unless specifically authorized by purchaser.

3.3 Properties:

The product shall conform to the following requirements, determined in accordance with AMS 2355 on the mill produced size and as specified herein.

3.3.1 Tensile Properties: Shall be as shown in Table 2 for rods 0.50 to 4.00 inches (12.7 to 101.6 mm) in diameter, for square, hexagonal, and octagonal bar 0.50 to 3.50 inches (12.7 to 88.9 mm) in nominal distance between parallel faces, and for rectangular bar 3.00 inches (76.2 mm) in nominal thickness with width up to 6.00 inches (152.4 mm) or for rectangular bar 0.50 to 3.00 inches (12.7 to 76.2 mm) in nominal thickness with width up to 10 inches (254 mm).

TABLE 2 - Minimum Tensile Properties

Property	Value
Tensile Strength	77.0 ksi (531 MPa)
Yield Strength at 0.2% Offset	66.0 ksi (455 MPa)
Elongation in 4D	7%

3.4 Quality:

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

3.5 Tolerances:

Shall conform to all applicable requirements of ANSI H35.2 or ANSI H35.2M.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The vendor of the product shall supply all samples for vendor's tests and shall be responsible for the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to specified requirements.

4.2 Classification of Tests:

Acceptance Tests: Composition (3.1), tensile properties (3.3) and tolerances (3.5) are acceptance tests and except for composition, shall be performed on each lot.

4.3 Sampling and Testing:

Shall be in accordance with AMS 2355.

4.4 Reports:

The vendor of the product shall furnish with each shipment a report stating that the product conforms to the composition and tolerances, and showing the numerical results of tests on each inspection lot to determine conformance to the tensile property requirements. This report shall include the purchase order number, inspection lot number, AMS 4123H, size, and quantity. The report shall also identify the producer, the product form, and the size of the mill product.

4.5 Resampling and Retesting:

Shall be in accordance with AMS 2355.

5. PREPARATION FOR DELIVERY:

5.1 Identification:

Shall be in accordance with ASTM B 666/B666M.

5.2 Packaging:

The product shall be prepared for shipment in accordance with ASTM B 660 and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of the product to ensure carrier acceptance and safe delivery.

6. ACKNOWLEDGMENT:

A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

7. REJECTIONS:

Product not conforming to this specification, or to modifications authorized by purchaser, will be subject to rejection.

8. NOTES:

- 8.1 A change bar (|) located in the left margin is for the convenience of the user in locating areas where technical revisions, not editorial changes, have been made to the previous issue of this specification. An (R) symbol to the left of the document title indicates a complete revision of the specification, including technical revisions. Change bars and (R) are not used in original publications, nor in specifications that contain editorial changes only.