

AEROSPACE MATERIAL SPECIFICATION

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Superseding AMS 4186B

(R) Aluminum Alloy Bars, Rods, and Wire, Rolled or Cold Finished
5.6Zn - 2.5Mg - 1.6Cu - 0.23Cr (7075-F)
As Fabricated
(Composition similar to UNS A97075)

1. SCOPE:

1.1 Form:

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

1.2 Application:

These products have been typically used for parts requiring forming and as stock for flash welded rings which are to be subsequently solution and precipitation heat treated, 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 after solution and precipitation heat treatment; ARP 823 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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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 of Aluminum Alloys and Magnesium Alloys, Wrought Products (Except Forging Stock) and Flash Welded Rings
AMS 2772	Heat Treatment of Wrought Aluminum Alloy Raw Materials
AS1990	Aluminum Alloy Tempers
ARP823	Minimizing Stress-Corrosion Cracking in Wrought Heat-Treatable Aluminum Alloy Products

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	Packaging/Packing of Aluminum and Magnesium Products
ASTM B 666/B 666M	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	Dimensional Tolerances for Aluminum Mill Products
ANSI H35.2	Dimensional Tolerances for Aluminum Mill Products, Metric

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall conform to the following 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
Zinc	5.1	6.1
Chromium	0.18	0.28
Titanium	--	0.20
Other Elements, each	--	0.05
Other Elements, total	--	0.15
Aluminum	remainder	

3.2 Condition:

Rolled or cold finished, as ordered, in the as-fabricated condition.

3.3 Properties:

The product shall conform to the following requirements, determined in accordance with AMS 2355 on the mill produced size:

3.3.1 As Fabricated: No requirements.

3.3.2 Response to Solution and Precipitation Heat Treatment: Rods and wire 4 inches (102 mm) and under in nominal diameter; square, hexagonal, and octagonal bar 3 1/2 inches (89 mm) and under in nominal thickness; and rectangular bar 3 inches (76 mm) and under in nominal thickness and 6 inches (152 mm) and under in nominal width or 10 inches (254 mm) and under in nominal width when nominal thickness is under 3 inches (76 mm) shall have the following properties after solution and precipitation heat treatment in accordance with AMS 2772 to the -T62 temper (See AS1990):

3.3.2.1 Tensile Properties:

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 2 inches (50.8 mm) or 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:

4.2.1 Acceptance Tests: Composition (3.1), tensile properties after solution and precipitation heat treatment (3.3.2.1) and tolerances (3.5) are classified as acceptance tests and shall, except for composition, 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, tolerances and showing the numerical results of tests on each inspection lot to determine conformance to the other technical requirements of this specification. This report shall include the purchase order number, lot number, AMS 4186C, size, and quantity. The report shall also include the identity of the mill 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/B 666.

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.