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Superseding AMS 4115F

(R) Aluminum Alloy, Rolled or Cold-Finished, Bars, Rods, Wire, and Flash
Welded Rings
Annealed
1.0Mg - 0.60Si - 0.28Cu - 0.20Cr (6061-0)
(Composition similar to UNS A96061)

RATIONALE

This document has been reaffirmed to comply with the SAE 5-year Review policy.

1. SCOPE:

1.1 Form:

This specification covers an aluminum alloy in the form of rolled or cold-finished bars, rods, and wire, of flash welded rings, and of stock for flash welded rings.

1.2 Application:

These products have been used typically for parts requiring moderate strength, especially where such parts require brazing or welding during fabrication, 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.

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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, Aluminum Alloys and Magnesium Alloys, Wrought Products, Except Forging Stock, and Rolled, Forged, or Flash Welded Rings
- MAM 2355 Quality Assurance Sampling and Testing, Aluminum Alloys and Magnesium Alloys, Wrought Products, Except Forging Stock, and Rolled, Forged, or Flash Welded Rings, Metric (SI) Units
- AMS 7488 Rings, Flash Welded, Aluminum and Aluminum Alloys
- AMS 2772 Heat Treatment of Aluminum Alloy Raw Materials
- AS1990 Aluminum Alloy Tempers

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, 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 American National Standards Institute, Inc., 25 West 43rd Street, New York, NY 10036-8002.

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

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

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

TABLE 1 – Composition

Element	min	max
Silicon	0.40	0.80
Iron	--	0.7
Copper	0.15	0.40
Manganese	--	0.15
Magnesium	0.8	1.2
Chromium	0.04	0.35
Zinc	--	0.25
Titanium	--	0.15
Other Elements, each		0.05
Other Elements, total	--	0.15
Aluminum	remainder	

3.2 Condition:

The product shall be supplied in the following condition:

- 3.2.1 Bars, Rods, and Wire: Rolled or cold-finished, as ordered, and annealed in accordance with AMS 2772 to the O temper (See AS1990).
- 3.2.2 Flash Welded Rings: Shall be manufactured in accordance with AMS 7488 and annealed in accordance with AMS 2772 to the O temper.
- 3.2.3 Stock for Flash Welded Rings: As ordered by the flash welded ring manufacturer.

3.3 Properties:

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

3.3.1 Bars, Rods, Wire, and Flash Welded Rings:

3.3.1.1 As Annealed Tensile Properties: Shall be as shown in Table 2 for bars, rods, and wire 8 inches (203 mm) and under in nominal diameter or least distance between parallel sides and for flash welded rings 8 inches (203 mm) and under in radial thickness.

TABLE 2 - Tensile Properties

Property	Value
Tensile Strength, maximum	22.0 ksi (152 MPa)
Elongation in 4D, minimum	18%

3.3.1.2 Response to Heat Treatment: The product shall have the following properties after being solution and precipitation heat treated to the -T62 temper in accordance with AMS 2772.

3.3.1.2.1 Tensile Properties: Shall be as shown in Table 3 for rounds 8 inches (203 mm) and under in nominal diameter, for rectangular, square, hexagonal, and octagonal bar 8 inches (203 mm) and under in least distance between parallel sides and 50 square inches (322 cm²) and under in cross-sectional area, and for flash welded rings 8 inches (203 mm) and under in radial thickness and 50 square inches (322 cm²) and under in cross-sectional area.

TABLE 3 - Minimum Tensile Properties

Property	Value
Tensile Strength	42.0 ksi (290 MPa)
Yield Strength at 0.2% Offset	35.0 ksi (241 MPa)
Elongation in 4D	10%

3.3.2 Stock for Flash Welded Rings: Specimens taken from the stock after solution and precipitation heat treatment as in 3.3.1.2 shall conform to the requirements of 3.3.1.2.1.

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:

Bars, rods, and wire 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 vendors 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.