

AEROSPACE MATERIAL SPECIFICATION

SAE AMS4182

REV. G

Issued 1948-09
Reaffirmed 2006-10
Revised 2009-12

Superseding AMS4182F

Aluminum Alloy, Wire
5.0Mg - 0.12Mn - 0.12Cr (5056-0)
Annealed

(Composition similar to UNS A95056)

RATIONALE

AMS4182G revises tolerances (3.5) and is a Five Year Review and update of this specification.

1. SCOPE

1.1 Form

This specification covers an aluminum alloy in the form of wire.

1.2 Application

This wire has been used typically for the manufacture of screen for reinforcement of, and to provide electrical conductivity through, rubber gaskets, 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 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

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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 B 660 Packaging/Packing of Aluminum and Magnesium Products

2.3 ANSI Publications

Available from American National Standards Institute, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

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 AMS2355.

TABLE 1 - COMPOSITION

Element	min	max
Silicon	--	0.30
Iron	--	0.40
Copper	--	0.10
Manganese	0.05	0.20
Magnesium	4.5	5.6
Chromium	0.05	0.20
Zinc	--	0.10
Other Elements, each	--	0.05
Other Elements, total	--	0.15
Aluminum	remainder	

3.2 Condition

Annealed.

3.3 Properties

Wire shall conform to the following requirements; tensile properties shall be determined in accordance with AMS2355 on the mill produced size.

3.3.1 Tensile Properties

Shall be shown in Table 2.

TABLE 2 - TENSILE PROPERTIES

Property	Value
Tensile Strength, max	46.0 ksi (317 MPa)
Elongation in 2 Inches (50.8 mm) or 4D, min	
Nominal Diameter	
0.125 to 0.375 inch, excl	20%
(3.18 to 9.52 mm, excl)	

3.3.2 Bending

Wire shall withstand, without cracking, bending at room temperature flat on itself.

3.4 Quality

Wire, 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 wire.

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 wire 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 wire conforms to specified requirements.

4.2 Classification of Tests

All technical requirements are acceptance tests and shall be performed on each lot.

4.3 Sampling and Testing

Shall be in accordance with AMS2355.

4.4 Reports

The vendor of wire shall furnish with each shipment a report stating that the wire conforms to the composition and tolerances, and showing the numerical results of tests on each inspection lot to determine conformance to the other acceptance tests requirements. This report shall include the purchase order number, inspection lot number, AMS4182G, 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 AMS2355.

5. PREPARATION FOR DELIVERY

5.1 Packaging and Identification

Wire shall be identified as follows:

- 5.1.1 Wire, supplied on spools, shall contain 5, 10, 15, or 30 pounds (2.27, 4.54, 6.80, or 13.6 kg), as ordered. Each spool shall be legibly marked, on one flange of the spool or on a durable tag attached to each spool, with not less than the nominal size, alloy number and temper, lot number, AMS4182G, and manufacturer's identification.
- 5.1.2 Straight wire shall be bundled, boxed, or secured on lifts and identified by two durable tags legibly marked with the information of 5.1.1 and attached, not farther than 2 feet (610 mm) from each end, to the wire in each bundle, box, or lift.
- 5.1.3 Coiled wire shall be identified with the information of 5.1.1, legibly marked on a durable tag attached to each coil or directly on one flange of each spool.