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Title of Document: Aluminum Alloy Welding Wire 4.6Cu-0.35Mn-0.25Mg-0.22Ti For Welding 206 Type Alloys

Date of Specific Issue Adopted: 1 January 1987

Releasing Industry Group: Society of Automotive Engineers, Inc.

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Custodians:
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Military Coordinating Activity:
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AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

AMS 4244

Issued 1-1-87

ALUMINUM ALLOY WELDING WIRE
4.6Cu - 0.35Mn - 0.25Mg - 0.22Ti
For Welding 206 Type Alloys

1. SCOPE:

1.1 Form: This specification covers an aluminum alloy in the form of welding wire.

1.2 Application: Primarily for use as filler metal for gas-metal-arc and gas-tungsten-arc welding of aluminum alloy castings having similar composition (206.0 and A206.0) and requiring in the weld zone response to heat treatment, properties, and corrosion resistance comparable to those of the castings.

1.3 Classification: Wire supplied to this specification is classified as follows:

Type 1 - As Extruded and Sized
Type 2 - As Drawn

1.3.1 Unless a specific type is ordered, either type may be supplied.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications shall apply.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2355 - Quality Assurance Sampling and Testing of Aluminum Alloys and Magnesium Alloys, Wrought Products (Except Forging Stock) and Flash Welded Rings
MAM 2355 - Quality Assurance Sampling and Testing of Aluminum Alloys and Magnesium Alloys, Wrought Products (Except Forging Stock) and Flash Welded Rings, Metric (SI) Units
AMS 2813 - Packaging of Welding Wire, Standard Method
AMS 2815 - Identification, Welding Wire, Line Code System
AMS 2816 - Identification, Welding Wire, Color Code System

3. TECHNICAL REQUIREMENTS:

3.1 Composition: Shall conform to the following percentages by weight, determined in accordance with AMS 2355 or MAM 2355:

	min	max
Copper	4.2	5.0
Manganese	0.20	0.50
Magnesium	0.15	0.35
Titanium	0.15	0.30
Iron	--	0.10
Zinc	--	0.10
Silicon	--	0.05
Nickel	--	0.05
Tin	--	0.05
Other Impurities, each	--	0.05
Other Impurities, total	--	0.15
Aluminum	remainder	

3.2 Condition: Wire may be made by any method unless a specific method is specified but shall be in a temper which will provide proper feeding of the wire in machine welding equipment.

3.2.1 Wire shall be furnished on disposable spools for machine welding or in cut lengths for manual welding, as ordered.

3.2.2 Oxides, dirt, and drawing compounds shall be removed by cleaning processes which will neither result in pitting nor cause gas absorption by the wire or deposition of substances harmful to welding operations.

3.3 Properties: Wire shall conform to the following requirements:

3.3.1 Weldability: Melted wire shall flow smoothly and evenly during welding and shall produce acceptable welds, determined by a procedure agreed upon by purchaser and vendor.

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 welding operations, operation of welding equipment, or properties of the deposited weld metal.

3.5 Sizes and Tolerances: Wire shall be supplied in the sizes and to the tolerances of Table I unless drawn wire is specified, in which case wire shall conform to the tolerances of Table II.

3.5.1 Diameter:

3.5.1.1 Extruded Wire:

TABLE I

Form	Nominal Diameter Inch	Tolerance, Inch plus	minus
Cut Lengths	0.045, 0.062, 0.078, 0.094, 0.125	0.007	0.007
Spools	0.030, 0.035, 0.045, 0.062, 0.094	0.002	0.002

TABLE I (SI)

Form	Nominal Diameter Millimetres	Tolerance, Millimetre plus	minus
Cut Lengths	1.15, 1.55, 1.95, 2.35, 3.10	0.18	0.18
Spools	0.75, 0.90, 1.15, 1.55, 2.35	0.05	0.05

3.5.1.2 Drawn Wire:

TABLE II

Form	Nominal Diameter Inch	Tolerance, Inch plus	minus
Cut Lengths	0.045, 0.062, 0.078, 0.094, 0.125	0.003	0.003
Spools	0.030, 0.035, 0.045	0.001	0.002
Spools	0.062, 0.094	0.002	0.002

TABLE II (SI)

Form	Nominal Diameter Millimetres	Tolerance, Millimetre plus	minus
Cut Lengths	1.15, 1.55, 1.95, 2.35, 3.10	0.08	0.08
Spools	0.75, 0.90, 1.15	0.02	0.05
Spools	1.55, 2.35	0.05	0.05

3.5.2 Length: Cut lengths shall be furnished in 36-in. (900-mm) lengths and shall not vary more than +0, -1 in. (-25 mm) from the length ordered.

4. QUALITY ASSURANCE PROVISIONS: