



AEROSPACE MATERIAL SPECIFICATION

AMS4163™

REV. G

Issued 1968-05
Reaffirmed 2008-05
Revised 2022-10

Superseding AMS4163F

Aluminum Alloy, Extrusions
6.3Cu - 0.30Mn - 0.18Zr - 0.10V - 0.06Ti (2219-T3511)
Solution Heat Treated, Stress-Relieved by Stretching, and Straightened
(Composition similar to A92219)

RATIONALE

AMS4163G results from a Five-Year Review and update of this specification with changes to update general agreement language related to unauthorized exceptions (3.3.3, 3.6, 8.5), applicable documents (Section 2), ultrasonic inspection (3.4.1), hardness (8.2), ordering information (8.6), and allow the use of the immediate prior specification revision (8.4).

1. SCOPE

1.1 Form

This specification covers an aluminum alloy in the form of extruded bars, rods, wire, profiles, and tubing up to 2.999 inches (76.17 mm), inclusive, in thickness, nominal diameter or wall thickness with cross-sectional area 25 square inches (161 cm²) and under (see 8.6).

1.2 Application

These extrusions have been used typically for structural parts requiring high strength up to 500 °F (260 °C) after proper precipitation heat treatment and which may require welding during fabrication, but usage is not limited to such applications.

1.2.1 Certain design and fabricating procedures may cause extrusions in the specified condition 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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SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

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For more information on this standard, visit
<https://www.sae.org/standards/content/AMS4163G/>

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (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 |
| AMS2772 | Heat Treatment of Aluminum Alloy Raw Materials |
| ARP823 | Minimizing Stress-Corrosion Cracking in Wrought Heat-Treatable Aluminum Alloy Products |
| AS7766 | Terms Used in Aerospace Metals Specifications |

2.2 ANSI Accredited Publications

Copies of these documents are available online at <https://webstore.ansi.org/>.

| | |
|-------------------|--|
| ANSI H35.1/H35.1M | Standard Alloy and Temper Designation System for Aluminum |
| ANSI H35.2 | Dimensional Tolerances for Aluminum Mill Products |
| ANSI H35.2M | Dimensional Tolerances for Aluminum Mill Products (Metric) |

2.3 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 B594 | Ultrasonic Inspection of Aluminum-Alloy Wrought Products |
| ASTM B660 | Packaging/Packing of Aluminum and Magnesium Products |
| ASTM B666/B666M | Identification Marking of Aluminum and Magnesium Products |
| ASTM E10 | Brinell Hardness of Metallic Materials |
| ASTM G47 | Determining Susceptibility to Stress Corrosion Cracking of 2XXX and 7XXX Aluminum Alloy Products |

2.4 Definitions

Terms used in AMS are defined in AS7766.

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall conform to the percentages by weight shown in Table 1, determined in accordance with AMS2355.