

# AEROSPACE MATERIAL SPECIFICATION

**SAE AMS4166**

**REV. G**

Issued 1968-11  
Revised 2003-07  
Reaffirmed 2008-05  
Cancelled 2012-01

Superseded by AMS4617

Aluminum Alloy, Extrusions  
5.6Zn - 2.5Mg - 1.6Cu - 0.23Cr (7075-T73)  
Solution Heat Treated and Overaged

(Composition similar to A97075)

## RATIONALE

AMS4166G has been designated Cancelled and Superseded because equivalent technical requirements are provided by other specifications.

## CANCELLATION NOTICE

This specification has been declared "CANCELLED" by the Aerospace Materials Division, SAE, as of January 2012 and has been superseded by the specification listed below. The requirements of the latest issue of the specification listed below shall be fulfilled whenever reference is made to the cancelled AMS4166. By this action, this document will remain listed in the Numerical Section of the Index of Aerospace Material Specifications, noting that it has been superseded by the specification listed below.

Cancelled specifications are available from SAE.

| Temper | Superseding Material and Specification                                                                                                                                                                                          |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| T73    | 7075-T73511 or -T73 in accordance with AMS4617 Aluminum Alloy, Extrusions, 5.6Zn - 2.5Mg - 1.6Cu - 0.23Cr (7075-T73, 7075-T73511, 7075-T73510) Solution Heat Treated, Stress Relieved by Stretching When Required, and Overaged |

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## 1. SCOPE:

### 1.1 Form:

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

### 1.2 Application:

These products have been used typically for parts requiring high strength and resistance to stress-corrosion cracking, 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 canceled and no superseding document has been specified, the last published issue of that document shall apply.

### 2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or [www.sae.org](http://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  
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](http://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                                |
| ASTM G 47         | Determining Susceptibility to Stress Corrosion Cracking of 2XXX and 7XXX Aluminum Alloys |

## 2.3 ANSI Publications:

Available from ANSI, 25 West 43rd Street, New York, NY 10036 or [www.ansi.org](http://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 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  |
| Chromium              | 0.18      | 0.28 |
| Zinc                  | 5.1       | 6.1  |
| Titanium              | --        | 0.20 |
| Other Elements, each  | --        | 0.05 |
| Other Elements, total | --        | 0.15 |
| Aluminum              | remainder |      |

### 3.2 Condition:

Solution heat treated and overaged, to the T73 temper (see AS1990). Heat treatment shall be performed in accordance with AMS 2772.