

# AERONAUTICAL MATERIAL SPECIFICATION

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## ALUMINUM ALLOY EXTRUSIONS 6.8Zn - 2.75Mg - 2Cu - 0.3Cr (X7178-T6)

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.

2. FORM: Bars, rods, and shapes.

3. COMPOSITION:

|                         |           |     |      |
|-------------------------|-----------|-----|------|
| Zinc                    | 6.3       | -   | 7.3  |
| Magnesium               | 2.4       | -   | 3.1  |
| Copper                  | 1.6       | -   | 2.4  |
| Chromium                | 0.18      | -   | 0.40 |
| Iron                    | 0.7       | max |      |
| Silicon                 | 0.50      | max |      |
| Manganese               | 0.30      | max |      |
| Titanium                | 0.20      | max |      |
| Other Impurities, each  | 0.05      | max |      |
| Other Impurities, total | 0.15      | max |      |
| Aluminum                | remainder |     |      |

4. CONDITION: Solution and precipitation heat treated.

- 4.1 Unless otherwise specified, extrusions shall be supplied with an as-extruded surface finish; light polishing to remove minor surface imperfections is permissible provided such imperfections can be removed within the dimensional tolerances.

### 5. TECHNICAL REQUIREMENTS:

#### 5.1 Tensile Properties:

| Nominal Diameter<br>or Least Thickness<br>Inches | Tensile<br>Strength<br>psi, min | Yield Strength at 0.2% Offset<br>or at Extension Indicated<br>(E = 10,300,000) |              | Elongation<br>% in 4D<br>min |
|--|---------------------------------|--|--------------|------------------------------|
|  |                                 | Extension Under Load<br>psi, min   | in. in 2 in. |                              |
| 0.25 and under                                   | 84,000                          | 76,000   | 0.0188       | 5                            |
| Over 0.25 to 2.99, incl                          | 86,000                          | 78,000   | 0.0192       | 5                            |

- 5.1.1 The tensile property requirements shall be based on the thickness of the portion of the extrusion from which the test specimens are taken. Specimens from sections over 1.5 in. in diameter or thickness shall be taken midway between center and surface.

- 5.1.2 If sizes other than those shown above are ordered, tensile properties shall be as agreed upon by purchaser and vendor.