# Aluminium Alloy
# L168 T6511 Bar

GOULD ALLOYS
THE LEADING EDGE IN METALS

## SPECIFICATIONS

| | |
|---|---|
| Aerospace | L168 T6511 |
| Commercial | 2014A |

Aluminium alloy L168 - 2014A is a very high mechanical strength alloy used for critical applications and is the most widely used aluminium bar alloy in the aerospace industry.
It has very good machinability and is thus used for the production of complex machined parts.

## CHEMICAL COMPOSITION

*BS L168(1978)*
*Alloy L168*

| Element | % Present |
|---|---|
| Copper (Cu) | 3.9 - 5 |
| Manganese (Mn) | 0.4 - 1.2 |
| Silicon (Si) | 0.5 - 0.9 |
| Magnesium (Mg) | 0.2 - 0.8 |
| Iron (Fe) | 0.5 max |
| Zinc (Zn) | 0.25 max |
| Titanium + Zirconium (Ti+Zr) | 0.2 max |
| Titanium (Ti) | 0.15 max |
| Others (Total) | 0.15 max |
| Chromium (Cr) | 0.1 max |
| Nickel (Ni) | 0.1 max |
| Other (Each) | 0.05 max |
| Aluminium (Al) | Balance |

## ALLOY DESIGNATIONS

Aluminium alloy BS L168 - 2014A has similarities to the following standard designations and specifications **but may not be a direct equivalent:**
2014, AMS4121

## TEMPER TYPES

The most common tempers for L168 - 2014A aluminium are:

- T6 - Solution heat treated and artificially aged
- T6510 - Solution heat treated and stress-relieved by stretching then artificially aged with no straightening after aging
- T6511 - Solution heat treated and stress-relieved by stretching then artificially aged with minor straightening after aging

## SUPPLIED FORMS

L168-2014A aluminium is supplied in Bar, Rod and Extruded Sections.

- Bar
- Extrusions

## GENERIC PHYSICAL PROPERTIES

| Property | Value |
|---|---|
| Density | 2.80 g/cm³ |
| Melting Point | 640 °C |
| Thermal Expansion | 22.8 x$10^{-6}$ /K |
| Modulus of Elasticity | 73 GPa |
| Thermal Conductivity | 155 W/m.K |
| Electrical Resistivity | 40 % IACS |

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## MECHANICAL PROPERTIES

These Mechanical Properties are for bar in the T6511 temper

| Diameter | Proof Strength (Min) | Tensile Strenth (Min) | Elongation % (Min) |
|---|---|---|---|
| Up to & incl 2.5 | 370 | 415 | 6 |
| Over 2.5 up to and incl. 10 | 385 | 435 | 6 |
| Over 10 up to and incl. 25 | 415 | 460 | 7 |
| Over 25 up to and incl. 75 | 440 | 490 | 7 |
| Over 75 up to and incl. 100 | 435 | 480 | 7 |
| Over 100 up to and incl. 150 | 420 | 465 | 7 |
| Over 150 up to and incl. 200 | 390 | 435 | 7 |

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## REVISION HISTORY

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