

## SPECIFICATIONS

Commercial 2014A T6511

A high strength 4 to 5% Copper alloy produced in extruded bar and profile form, in the fully heat-treated condition (solution heat-treated & artificially aged). Normally stocked in the T6511 condition (stress relieved by controlled stretching) Except for sizes under 10mm diameter and over 203.2mm diameter. (T6 only). Over 203.2mm diameter is manufactured to chemical composition Only.

Machinability of aluminium alloy 2014A is very good. Typical applications of aluminium alloy 2014A are high strength components especially for use in the aerospace and defence industries.

## CHEMICAL COMPOSITION

BS EN 573-3:2009  
Alloy 2014

Element	% Present
Copper (Cu)	3.90 - 5.00
Manganese (Mn)	0.40 - 1.20
Silicon (Si)	0.50 - 0.90
Magnesium (Mg)	0.20 - 0.80
Iron (Fe)	0.0 - 0.50
Zinc (Zn)	0.0 - 0.25
Titanium + Zirconium (Ti+Zr)	0.0 - 0.20
Others (Total)	0.0 - 0.15
Titanium (Ti)	0.0 - 0.15
Nickel (Ni)	0.0 - 0.10
Chromium (Cr)	0.0 - 0.10
Other (Each)	0.0 - 0.05
Aluminium (Al)	Balance

## TEMPER TYPES

This datasheet relates to temper T6511. The most common temper for aluminium alloy 2014A are:

- T6 - Solution heat treated and artificially aged
- T3 - Solution heat treated, cold worked and naturally aged
- T6511 - Solution heat treated and stress-relieved by stretching then artificially aged with minor straightening after aging
- T651 - Solution heat treated, stress relieved by stretching then artificially aged

## SUPPLIED FORMS

Round Bar is stocked in the range 1/2inch to 10inch diameter.

Plate is stocked in thicknesses 1/2inch to 4 inch.

- Bar
- Plate

## GENERIC PHYSICAL PROPERTIES

Property	Value
Density	2.82 g/cm <sup>3</sup>
Melting Point	535 °C
Thermal Expansion	23 x10 <sup>-6</sup> /K
Modulus of Elasticity	71 GPa
Thermal Conductivity	138 W/m.K
Electrical Resistivity	0.045 x10 <sup>-6</sup> Ω .m

## MECHANICAL PROPERTIES

BS EN 755-2:2008  
Rod & Bar  
Up to 25mm Dia. & A/F

Property	Value
Proof Stress	370 Min MPa
Tensile Strength	415 Min MPa
Elongation A50 mm	5 Min %
Hardness Brinell	140 HB
Elongation A	6 Min %

Properties above are for material in the T6511 condition.

## Aluminium Alloy 2014A T6511 Extrusion



BS EN 755-2:2008  
Bar  
25mm to 75mm Dia. & A/F

Property	Value
Proof Stress	415 Min MPa
Tensile Strength	460 Min MPa
Hardness Brinell	140 HB
Elongation A	7 Min %

Properties above are for material in the T6511 condition.

BS EN 755-2:2008  
Bar  
75mm to 150mm Dia. & A/F

Property	Value
Proof Stress	420 Min MPa
Tensile Strength	465 Min MPa
Hardness Brinell	140 HB
Elongation A	7 Min %

Properties above are for material in the T6511 condition.

BS EN 755-2:2008  
Bar  
150mm to 200mm Dia. & A/F

Property	Value
Proof Stress	350 Min MPa
Tensile Strength	430 Min MPa
Hardness Brinell	140 HB
Elongation A	6 Min %

Properties above are for material in the T6511 condition.

BS EN 755-2:2008  
Tube  
Up to 10mm Wall Thickness

Property	Value
Proof Stress	370 Min MPa
Tensile Strength	415 Min MPa
Elongation A50 mm	5 Min %
Hardness Brinell	140 HB
Elongation A	7 Min %

Properties above are for material in the T6511 condition.

BS EN 755-2:2008  
Tube  
10mm to 40mm Wall Thickness

Property	Value
Proof Stress	400 Min MPa
Tensile Strength	450 Min MPa
Elongation A50 mm	4 Min %
Hardness Brinell	140 HB
Elongation A	6 Min %

Properties above are for material in the T6511 condition.

BS EN 755-2:2008  
Profile  
Up to 25mm Wall Thickness

Property	Value
Proof Stress	370 Min MPa
Tensile Strength	415 Min MPa
Elongation A50 mm	5 Min %
Hardness Brinell	140 HB
Elongation A	7 Min %

Properties above are for material in the T6511 condition.

BS EN 755-2:2008  
Profile  
25mm to 75mm Wall Thickness

Property	Value
Proof Stress	415 Min MPa
Tensile Strength	460 Min MPa
Hardness Brinell	140 HB
Elongation A	7 Min %

Properties above are for material in the T6511 condition.

### CORROSION RESISTANCE

Resistance to atmospheric attack:

Poor, especially when exposed to water or salt Environments.

To protect against atmospheric corrosion in storage, lightly coat with Lanolin based protective Oil.

For further information, please contact Sales Dept

## WELDABILITY

Brazing & Soldering - Not recommended  
Oxygen - Not recommended  
Inert Gas - Not recommended  
Resistance, Spot, Beam - Excellent

## SURFACE TREATMENT

Anodising  
- Protective - Fair  
- Bright - Unsuitable  
- Hard - Good  
- Colour - Fair (Dark colour only)  
.  
Plating  
- Very Good

## CONTACT

**Address:** Please make contact directly with your local service centre, which can be found via the Locations page of our web site  
**Web:** [www.aalco.co.uk](http://www.aalco.co.uk)

## REVISION HISTORY

**Datasheet Updated** 18 July 2019

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