

**SPECIFICATIONS**

<b>Commercial</b>	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 - Equivalent to T4 condition
- 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:** 180/3, Nagar Kalyan Road, A/P: Bhalawani.  
Tal : Parner, Dist. Ahmednagar - 414103,  
Maharashtra (INDIA).  
**Web:** [www.galaluminium.in](http://www.galaluminium.in)

### REVISION HISTORY

**Datasheet Updated** 01-April-2019

### DISCLAIMER

This Data is indicative only and as such is not to be relied upon in place of the full specification. In particular, mechanical property requirements vary widely with temper, product and product dimensions. All information is based on our present knowledge and is given in good faith. No liability will be accepted by the Company in respect of any action taken by any third party in reliance thereon.

Please note that the 'Datasheet Update' date shown above is no guarantee of accuracy or whether the datasheet is up to date.

The information provided in this datasheet has been drawn from various recognised sources, including EN Standards, recognised industry references (printed & online) and manufacturers' data. No guarantee is given that the information is from the latest issue of those sources or about the accuracy of those sources.

Material supplied by the Company may vary significantly from this data, but will conform to all relevant and applicable standards.

As the products detailed may be used for a wide variety of purposes and as the Company has no control over their use; the Company specifically excludes all conditions or warranties expressed or implied by statute or otherwise as to dimensions, properties and/or fitness for any particular purpose, whether expressed or implied.

Advice given by the Company to any third party is given for that party's assistance only and without liability on the part of the Company. All transactions are subject to the Company's current Conditions of Sale. The extent of the Company's liabilities to any customer is clearly set out in those Conditions; a copy of which is available on request.