

### SPECIFICATIONS

Commercial	2014 T651
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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 T651 condition (stress relieved by controlled stretching) Except for sizes under 10mm diameter and over 203.2mm diameter. (T6 only).

Over 203mm diameter is manufactured to chemical composition Only.

Machinability of aluminium alloy 2014 is very good.

Typical applications of aluminium alloy 2014 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)	3.9 - 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
Others (Total)	0.15 max
Titanium (Ti)	0.15 max
Chromium (Cr)	0.1 max
Nickel (Ni)	0.1 max
Other (Each)	0.05 max
Aluminium (Al)	Balance

### TEMPER TYPES

This datasheet relates to temper T651. The most common temper for aluminium alloy 2014 are:

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

### 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>
Electrical Resistivity	0.045 x10 <sup>-6</sup> Ω .m
Melting Point	535 °C
Modulus of Elasticity	71 GPa
Thermal Conductivity	138 W/m.K
Thermal Expansion	23 x10 <sup>-6</sup> /K

### MECHANICAL PROPERTIES

BS EN 485-2:2008  
Sheet  
0.4mm to 6mm

Property	Value
Hardness Brinell	133 HB
Proof Stress	390 Min MPa
Tensile Strength	440 Min MPa

Properties above are for material in the T651 condition.

BS EN 485-2:2008  
Plate  
6mm to 12.5mm

Property	Value
Elongation A50 mm	7 Min %
Hardness Brinell	135 HB
Proof Stress	395 Min MPa
Tensile Strength	450 Min MPa

Properties above are for material in the T651 condition.

BS EN 485-2:2008  
Plate  
12.5mm to 40mm

Property	Value
Elongation A	6 Min %
Hardness Brinell	138 HB
Proof Stress	400 Min MPa
Tensile Strength	460 Min MPa

Properties above are for material in the T651 condition.

BS EN 485-2:2008  
Plate  
40mm to 60mm

Property	Value
Elongation A	5 Min %
Hardness Brinell	135 HB
Proof Stress	390 Min MPa
Tensile Strength	450 Min MPa

Properties above are for material in the T651 condition.

BS EN 485-2:2008  
Plate  
60mm to 80mm

Property	Value
Elongation A	4 Min %
Hardness Brinell	131 HB
Proof Stress	380 Min MPa
Tensile Strength	435 Min MPa

Properties above are for material in the T651 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

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## REVISION HISTORY

Datasheet Updated	09 July 2021
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