Aluminium Alloy - 2014A T6511 Extrusion

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.mm diameter is manufactured to chemical composition Only.
Machinability of aluminium alloy 2014A is very good.
Typical applications of aluminium alloy 2014A are high strength componenets 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
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

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 stokced in thicknesses 1/2inch to 4 inch.

- Bar
- Plate

GENERIC PHYSICAL PROPERTIES

Property	Value
Density	2.82 g/cm³
Modulus of Elasticity	71 GPa
Electrical Resistivity	0.045 $x10^{-6}$ Ω .m
Thermal Conductivity	138 W/m.K
Thermal Expansion	23 $x10^{-6}$ /K
Melting Point	535 °C

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.

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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.

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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	13 November 2018

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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.

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