Aluminium Alloy
2L77 T6

GOULD ALLOYS
THE LEADING EDGE IN METALS

SPECIFICATIONS

Commercial	2014A

Applications:
High strength structural components: aircraft (e.g. fittings and wheels), military vehicles and bridges, forgings for trucks and machinery (hydraulic etc.). Weapons manufacture, structural applications.

Characteristic Properties:
Heat treatable alloy. High mechanical strength slightly higher than 2011 and 2017A.

CHEMICAL COMPOSITION

BS 2L77(1971)
Alloy 2L77

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)	0.2 max
Titanium + Zirconium (Ti+Zr)	0.2 max
Nickel (Ni)	0.2 max
Chromium (Cr)	0.1 max
Tin (Sn)	0.05 max
Lead (Pb)	0.05 max
Aluminium (Al)	Balance

Forging Stock: Cast billets and slabs for hot working and extruded bars, sections and hot-rolled plate for forging shall be supplied non-heat treated.

Forgings: Unless otherwise agreed between the manufacturer and the purchaser and stated on the order, forgings shall be supplied solution treated and precipitation treated.

ALLOY DESIGNATIONS

Aluminium alloy 2L77 - 2014A is covered by standard BS EN 4L77 (1971)

TEMPER TYPES

The most common temper for 2L77 - 2014A aluminium forging stock is:
- T6 - Solution heat treated and artificially aged

SUPPLIED FORMS

2L77 - 2014A aluminium is supplied as forging stock made from cast billet, extruded stock or rolled plate.
- Forgings
- Bar
- Castings
- Extrusions
- Plate

GENERIC PHYSICAL PROPERTIES

Property	Value
Density	2.80 g/cm³
Melting Point	640 °C
Thermal Expansion	22.8 x10^{-6} /K
Thermal Conductivity	134-155 W/m.K
Modulus of Elasticity	73 GPa

Solution treat by heating at a temp of 500C +/- 5C and quenching in water at a temperature not less than 40C nor more than 70C, unless otherwise agreed by the parent design firm and the manufacturer. If a water quenching temperature below 40 C is used, high residual stress and cracking may result, particularly in large and / or complicated forgings. For this reason it is desirable to quench in water at as high a temperature as is practible.

MECHANICAL PROPERTIES

BS 2L77(1971)

Property	Value
Proof Stress	395 Min MPa
Tensile Strength	450 Min MPa
Elongation A50 mm	6 Min %
Hardness Brinell	134 Min HB

This specification covers forging stock and forgings of aluminium-copper-magnesium-silicon-manganese alloy in the solution treated and precipitation treated condition.

The values shown in the mechanical properties apply to test pieces prepared by forging covering extruded forging stock and forgings made from cast billets, hot-rolled plate and extruded stock in all sizes.

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REVISION HISTORY

Datasheet Updated	07 January 2014

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.

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