

Aluminium alloy 6082 is a medium strength alloy with excellent corrosion resistance. It has the highest strength of the 6000 series alloys. Alloy 6082 is known as a structural alloy. In plate form, 6082 is the alloy most commonly used for machining. As a relatively new alloy, the higher strength of 6082 has seen it replace 6061 in many applications. The addition of a large amount of manganese controls the grain structure which in turn results in a stronger alloy. It is difficult to produce thin walled, complicated extrusion shapes in alloy 6082. The extruded surface finish is not as smooth as other similar strength alloys in the 6000 series.

In the T6 and T651 temper, alloy 6082 machines well and produces tight coils of swarf when chip breakers are used.

Applications

6082 is typically used in:

- ~ Highly stressed applications
- ~ Trusses
- ~ Bridges
- ~ Cranes
- ~ Transport applications
- ~ Ore skips
- ~ Beer barrels
- ~ Milk churns

CHEMICAL COMPOSITION

Element	% Present
Manganese (Mn)	0.40 - 1.00
Iron (Fe)	0.0 - 0.50
Magnesium (Mg)	0.60 - 1.20
Silicon (Si)	0.70 - 1.30
Copper (Cu)	0.0 - 0.10
Zinc (Zn)	0.0 - 0.20
Titanium (Ti)	0.0 - 0.10
Chromium (Cr)	0.0 - 0.25
Other (Each)	0.0 - 0.05
Others (Total)	0.0 - 0.15
Aluminium (Al)	Balance

ALLOY DESIGNATIONS

Aluminium alloy 6082 also corresponds to the following standard designations and specifications:

AA6082
HE30
DIN 3.2315
EN AW-6082
ISO: Al Si1MgMn
A96082

TEMPER TYPES

The most common tempers for 6082 aluminium are:

- T6 - Solution heat treated and artificially aged
- O - Soft
- T4 - Solution heat treated and naturally aged to a substantially stable condition
- T651 - Solution heat treated, stress relieved by stretching then artificially aged

SUPPLIED FORMS

Alloy 6082 is typically supplied as Channel, Angle, Tee, Square bar, Square box section, Rectangular box section, Flat bar, Tube and Sheet

Plate and shate can also be supplied as 6082-T651

- Extrusions
- Bar
- Plate
- Sheet
- Tube

PHYSICAL PROPERTIES

Property	Value
Density	2.70 g/cm ³
Melting Point	555 °C
Thermal Expansion	24 x10 ⁻⁶ /K
Modulus of Elasticity	70 GPa
Thermal Conductivity	180 W/m.K
Electrical Resistivity	0.038 x10 ⁻⁶ Ω .m

MECHANICAL PROPERTIES

Property	Value
Proof Stress	290 Typical MPa
Tensile Strength	340 Typical MPa
Hardness Vickers	95 Typical HV
Elongation A50	6 Min %

Properties above are for material in the T6 condition and, for rolled products, the T651 condition

WELDABILITY

6082 has very good weldability but strength is lowered in the weld zone. When welded to itself, alloy 4043 wire is recommended. If welding 6082 to 7005, then the wire used should be alloy 5356.

Weldability – Gas: Good
Weldability – Arc: Good
Weldability – Resistance: Good
Brazability: Good
Solderability: Good

FABRICATION

Workability - Cold: Good
Machinability: 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

REVISION HISTORY

Datasheet Updated 10 September 2013

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