Aluminium Alloy - 6082 - T6~T651 Plate

SPECIFICATIONS

Commercial	6082
EN	6082

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

BS EN 573-3:2009
Alloy 6082

Element	% Present
Silicon (Si)	0.7 - 1.3
Magnesium (Mg)	0.6 - 1.2
Manganese (Mn)	0.4 - 1
Iron (Fe)	0.5 max
Chromium (Cr)	0.25 max
Zinc (Zn)	0.2 max
Others (Total)	0.15 max
Copper (Cu)	0.1 max
Titanium (Ti)	0.1 max
Other (Each)	0.05 max
Aluminium (Al)	Balance

ALLOY DESIGNATIONS

Aluminium alloy 6082 also corresponds to the following standard designations and specifications **but may not be a direct equivalent:**
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 T6 & T651 is typically supplied as Plate and Shate.
- Plate
- Sheet

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GENERIC PHYSICAL PROPERTIES

Property	Value
Density	2.70 g/cm³
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

BS EN 485-2:2008
Plate
6.00m to 12.5mm

Property	Value
Proof Stress	255 Min MPa
Tensile Strength	300 Min MPa
Elongation A50 mm	9 Min %
Hardness Brinell	91 HB

Properties above are for material in the T6 and T651 condition

BS EN 485-2:2008
Plate
12.5mm to 100.00mm

Property	Value
Proof Stress	240 Min MPa
Tensile Strength	295 Min MPa
Hardness Brinell	89 HB

Properties above are for material in the T6 and T651 condition

BS EN 485-2:2008
Plate
100.00mm to 150.00mm

Property	Value
Proof Stress	240 Min MPa
Tensile Strength	275 Min MPa
Hardness Brinell	84 HB
Elongation A	6 Min %

Properties above are for material in the T6 and 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

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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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