

Aluminium Alloy 6082
Material Data Sheet
Scope

Aluminium alloy 6082 is a medium strength alloy with excellent corrosion resistance. It has the highest strength of 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 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, 6082 machines well and produces tight coils of swarf when chip breakers are used.

Application

This material is used for milk churns, trusses, cranes, ore skips, beer barrels, bridges, highly stressed applications and transport applications.

Supplied Forms

- Sheet
- Plate
- Extrusions
- Tube
- Bar

Alloy Designations

Aluminium alloy 6082 also corresponds to: AA6082, HE30, DIN 3.2315, EN AW-6082, ISO: Al Si1MgMn and A96082.

Temper Types

The most common tempers for 6082 aluminium are: O - Soft, T4 - Solution heat treated and naturally aged to a substantially stable condition, T6 - Solution heat treated and artificially aged and T651 - Solution heat treated, stress relieved by stretching then artificially aged.

Fabrication

- Solderability: Good
- Weldability - Gas: Good
- Weldability - Arc: Good
- Weldability - Resistance: Good
- Brazability: Good
- Workability - Cold: Good
- Machinability: Good

Welding

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

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
Aluminium (Al)	Balance

Mechanical properties at room temperature

Property	Value
Proof Stress	310 MPa
Tensile Strength	340 MPa
Elongation	11%
Shear Strength	210 MPa
Hardness Vickers	100 HV

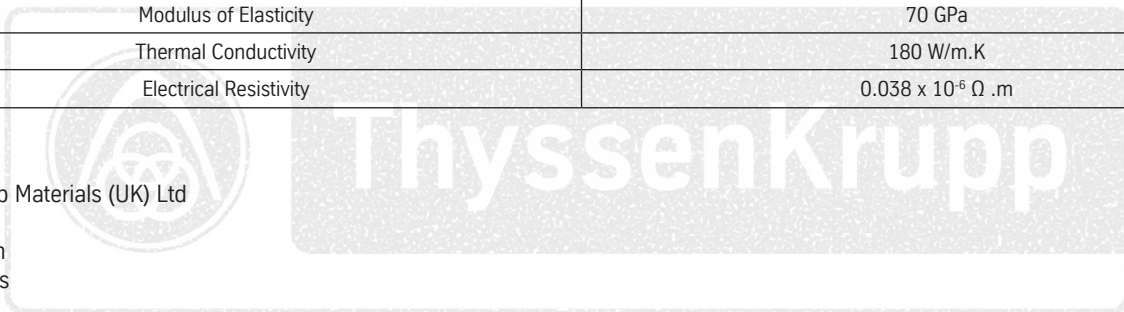
Properties above are for material in the T6 / T651 condition.

Reference data for some physical properties (for guidance only)

Property	Value
Density	2.70 Kg/m ³
Melting Point	555 °C
Thermal Expansion	24 x 10 ⁻⁶ /K
Modulus of Elasticity	70 GPa
Thermal Conductivity	180 W/m.K
Electrical Resistivity	0.038 x 10 ⁻⁶ Ω .m

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Important Note

Information given in this data sheet about the condition or usability of materials respectively products are no warranty for their properties, but act as a description.

The information, we give on for advice, comply to the experiences of the manufacturer as well as our own. We cannot give warranty for the results of processing and application of the products.