

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

- Extrusions
- Bar
- Tube

GENERIC 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

BS EN 755-2:2008 Rod & Bar Up to 20mm Dia. & A/F	
Property	Value
Proof Stress	250 Min MPa
Tensile Strength	295 Min MPa
Elongation A50 mm	6 Min %
Hardness Brinell	95 HB
Elongation A	8 Min %

Properties above are for material in the T6 condition

BS EN 755-2:2008 Rod & Bar 20mm to 150mm Dia. & A/F	
Property	Value
Proof Stress	260 Min MPa
Tensile Strength	310 Min MPa
Hardness Brinell	95 HB
Elongation A	8 Min %

Properties above are for material in the T6 condition

BS EN 755-2:2008 Bar 150mm to 200mm Dia. & A/F	
Property	Value
Proof Stress	240 Min MPa
Tensile Strength	280 Min MPa
Hardness Brinell	95 HB
Elongation A	6 Min %

Properties above are for material in the T6 condition

BS EN 755-2:2008 Bar 200mm to 250mm Dia. & A/F	
Property	Value
Proof Stress	200 Min MPa
Tensile Strength	270 Min MPa
Hardness Brinell	95 HB
Elongation A	6 Min %

Properties above are for material in the T6 condition

BS EN 755-2:2008 Tube Up to 5mm Wall Thickness	
Property	Value
Proof Stress	250 Min MPa
Tensile Strength	290 Min MPa
Elongation A50 mm	6 Min %
Hardness Brinell	95 HB
Elongation A	8 Min %

Properties above are for material in the T6 condition

BS EN 755-2:2008 Tube 5mm to 25mm Wall Thickness	
Property	Value
Proof Stress	260 Min MPa
Tensile Strength	310 Min MPa
Elongation A50 mm	8 Min %
Hardness Brinell	95 HB
Elongation A	10 Min %

Properties above are for material in the T6 condition

BS EN 755-2:2008 Open & Hollow Profile Up To 5mm Wall Thickness	
Property	Value
Proof Stress	250 Min MPa
Tensile Strength	290 Min MPa
Elongation A50 mm	6 Min %
Hardness Brinell	95 HB
Elongation A	8 Min %

Properties above are for material in the T6 condition

BS EN 755-2:2008 Open & Hollow Profile 5mm to 25mm Wall Thickness	
Property	Value
Proof Stress	260 Min MPa
Tensile Strength	310 Min MPa
Elongation A50 mm	8 Min %
Hardness Brinell	95 HB
Elongation A	10 Min %

Properties above are for material in the T6 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:	Gould Alloys Ltd Markham Lane Markham Vale Chesterfield S44 5HS United Kingdom
Tel:	+44 (0) 1246 263300
Email:	sales@gouldalloys.co.uk
Web:	www.gouldalloys.co.uk

REVISION HISTORY

Datasheet Updated	13 November 2018
-------------------	------------------

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.

The information provided in this datasheet has been drawn from various recognised sources, including EN Standards, recognised industry references (printed & online) and manufacturers' data. No guarantee is given that the information is from the latest issue of those sources or about the accuracy of those sources.

Material supplied by the Company may vary significantly from this data, but will conform to all relevant and applicable standards.

As the products detailed may be used for a wide variety of purposes and as the Company has no control over their use; the Company specifically excludes all conditions or warranties expressed or implied by statute or otherwise as to dimensions, properties and/or fitness for any particular purpose, whether expressed or implied.

Advice given by the Company to any third party is given for that party's assistance only and without liability on the part of the Company. All transactions are subject to the Company's current Conditions of Sale. The extent of the Company's liabilities to any customer is clearly set out in those Conditions; a copy of which is available on request.