6061

Aluminium Alloy
Data sheet

Material NOTE: The following data is for general reference only and NOT FOR DESIGN.

Description

Alloy 6061 is a Magnesium-Silicon bearing alloy suitable for medium strength that is heat treatable to develop required mechanical properties.

It has high corrosion resistance and high weldability and is typically used for heavy duty structures and fabricated components where high strength to low weight ratio is required.

Favoured as a preferred alloy for architectural applications in particular is resistant to marine environments.

Wire is used for cold forging components used in respective industries.

Alloy designations

Al6061, UNS A96061, ISO AlMg1SiCu, Aluminium 6061, AA6061-0

Applications

- Cold heading/forged components Eg Rivets
- Marine & chemical environments
- Structures and vehicles
- Lightweight components requiring high strength.

Substitutable Alloys

Alloys that can be substituted for 6061 include 6063

Chemical Composition[1]

Alloy	Si	Fe	Cu	Mn	**Mg**	Cr	Ni	Zn	Ti	Others	**Al(min)**
6061	**0.4-0.8**	0.40	0.30	0.10	**0.8-1.2**	0.25	-	0.1	-	0.15	**97.0 %**

NB: Assays in % max.

Physical Properties

Property	**Value**
Density	2.7g/ cc

[1] Complying with ASTM Aluminium Association

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Melting point	650 ˚C
Modulus if Elasticity	70 GPA
Resistivity	4.415e-006 ohm-cm
Electrical Conductivity	**37-47 % IACS**

Mechanical properties #

AS1865 Aluminium & Alloys – drawn wire, rod bar & strip

Temper		**Ultimate Tensile strength**		**Elongation**
		Mpa	**Ksi**	**%**
6061-F	As drawn			
H0	Annealed	110-152		14-16
T1	Cooled and aged	180		16
T4	Solution treated & naturally aged	180		16
T6	Solution treat & artificial aged	260-310		9-13

#: Typical averages

Solution Treatment

Alloy 6061 is hardenable by processes of precipitation hardening heat treatment followed by controlled cooling and ageing processes.

Physical performance

Weldability	Readily weldable using commercial filler metals. Filler metals usually 5356 alloy
Machinability	Good machinability .
Corrosion	6xxx series aluminium has good corrosion resistance .
Appearance	Bright chrome like appearance in drawn condition. Annealed metal is dull in appearance.
Surface cleaning	Wire surface can be cleaned readily with mineral solvents. Heavily contaminated surfaces can be cleaned using hot +70˚C diluted caustic solution

References

ASTMB211 Standard Specification for Aluminium and Aluminium Alloy Bar rod and wire