



## Aluminium Alloy 6061 - T6 Extrusions

### SPECIFICATIONS

|            |             |
|------------|-------------|
| Commercial | 6061        |
| EN /ASTM   | 6061/AA6061 |

Aluminium alloy 6061 is a medium to high strength heat-treatable alloy with a strength higher than 6005A. It has very good corrosion resistance and very good weldability although reduced strength in the weld zone. It has medium fatigue strength. It has good cold formability in the temper T4, but limited formability in T6 temper. Not suitable for very complex cross sections.

### Applications

Alloy 6061 is typically used for heavy duty structures in:

- ~ Rail coaches
- ~ Truck frames
- ~ Ship building
- ~ Bridges and Military bridges
- ~ Aerospace applications including helicopter rotor skins
- ~ Tube
- ~ Pylons and Towers
- ~ Transport
- ~ Boilermaking
- ~ Motorboats
- ~ Rivets

### CHEMICAL COMPOSITION

*BS EN 573-3:2009*

*Alloy 6061*

| Element        | % Present   |
|----------------|-------------|
| Magnesium (Mg) | 0.80 - 1.20 |
| Silicon (Si)   | 0.40 - 0.80 |
| Iron (Fe)      | 0.0 - 0.70  |
| Copper (Cu)    | 0.15 - 0.40 |
| Chromium (Cr)  | 0.04 - 0.35 |
| Zinc (Zn)      | 0.0 - 0.25  |
| Titanium (Ti)  | 0.0 - 0.15  |
| Manganese (Mn) | 0.0 - 0.15  |
| Others (Total) | 0.0 - 0.15  |
| Other (Each)   | 0.0 - 0.05  |
| Aluminium (Al) | Balance     |

### TEMPER TYPES

The most common temper for 6061 aluminium is:

- T6 - Solution heat treated and artificially age

### SUPPLIED FORMS

Alloy 6061 is typically supplied as

- Extrusions

### GENERIC PHYSICAL PROPERTIES

| Property               | Value                  |
|------------------------|------------------------|
| Density                | 2.70 g/cm <sup>3</sup> |
| Melting Point          | 650 °C                 |
| Thermal Expansion      | 23.4 x10-6 /K          |
| Modulus of Elasticity  | 70 GPa                 |
| Thermal Conductivity   | 166 W/m.K              |
| Electrical Resistivity | 0.040 x10-6 Ω .m       |

### MECHANICAL PROPERTIES

*BS EN 755-2:2008*

*Extrusions*

*Up to 200mm Dia. & A/F, 5mm WT for Tube and Prof*

| Property         | Value       |
|------------------|-------------|
| Proof Stress     | 240 Min MPa |
| Tensile Strength | 260 Min MPa |
| Hardness Brinell | 95 HB       |

### WELDABILITY

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