

# ALUMINIUM

## 2011 - T3



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Aluminium Alloy 2011-T3 is a free-machining alloy known for its high mechanical strength and excellent machinability. It belongs to the 2000 series of aluminium alloys and is typically used in applications where machining precision and dimensional stability are crucial. The 'T3' temper indicates that the alloy has been solution heat-treated, cold worked and naturally aged to a substantially stable condition.

#### KEY FEATURES

- Exceptional machinability
- Good mechanical properties
- Good corrosion resistance
- Excellent surface finishes
- Ideal for tight tolerances

#### CHEMICAL PROPERTIES

| Copper (Cu) | Iron (Fe)       | Silicone (Si) | Bismuth (Bi)    | Lead (Pb)       | Zinc (Zn)   | Other Elements | Aluminium (Al) |
|-------------|-----------------|---------------|-----------------|-----------------|-------------|----------------|----------------|
| <b>5-6%</b> | <b>0.4-0.8%</b> | <b>0.4%</b>   | <b>0.2-0.6%</b> | <b>0.2-0.6%</b> | <b>0.3%</b> | <b>0.15%</b>   | <b>rest</b>    |

#### MECHANICAL PROPERTIES

|                                       |            |
|---------------------------------------|------------|
| Tensile strength (N/mm <sup>2</sup> ) | <b>310</b> |
| Yield strength (N/mm <sup>2</sup> )   | <b>275</b> |
| Elongation (% at break)               | <b>10</b>  |
| Proof stress (MPa)                    | <b>245</b> |
| Hardness - Brinell (HB) max           | <b>95</b>  |

#### PHYSICAL PROPERTIES

|                                       |                   |             |
|---------------------------------------|-------------------|-------------|
| Density (kg/m <sup>3</sup> )          | <b>282</b>        |             |
| Modulus of elasticity (Gpa)           | <b>70</b>         |             |
| Mean coefficient of thermal expansion | 0-100°C (µm/m/°C) | <b>23.4</b> |
|                                       | 0-350°C (µm/m/°C) | <b>24.4</b> |
|                                       | 0-538°C (µm/m/°C) | <b>25.5</b> |
| Thermal conductivity                  | at 100°C (W/m.K)  | <b>185</b>  |
|                                       | at 500°C (W/m.K)  | <b>205</b>  |
| Specific Heat 0-100°C (J/kg.K)        | <b>39</b>         |             |
| Electrical conductivity (IACS %)      | <b>38</b>         |             |
| Melting point (°C)                    | <b>570</b>        |             |

#### MARKET SECTORS



**Manufacturing & Industrial**

Screws, fasteners, fixings, jigs, fixtures, tooling



**Automotive Industry**

Engine components, parts, bicycle frames



**Parts & Components**

Handles, fasteners in home appliances, structural parts



**Electrical Industry**

Electrical connectors, switchgear components



**Construction & Architecture**

Structural supports, building facades



**Aerospace Industry**

Aircraft structural components, fittings