AUBERT&DUVAL

Aluminium alloy

7050

Al Zn6CuMgZr

SPECIFICATIONS

European Standards:

- EN AW-7050 (Al Zn6CuMgZr)

WL : 3.4144

UNS : A97050

COMPOSITION

Zinc.....	6.20
Copper.....	2.30
Magnesium.....	2.30
Zirconium.....	0.12
Aluminum.....	Base

TYPICAL MECHANICAL PROPERTIES

- Forged T7452 condition. 150/175 mm thickness

-Tensile test at ambient temperature, longitudinal direction

- UTS: >469 N/mm^2
- 0.2 % Yield strength: >400 N/mm^2
- Elongation (5d): >9 %

- Closed-die forged T74 condition. 100/125 mm thickness

-Tensile test at ambient temperature, longitudinal direction

- UTS: >483 N/mm^2
- 0.2 % Yield strength: >414 N/mm^2
- Elongation (5d): >7 %
- K1c (L -T direction): >27.5 MPa$\sqrt{m}$

APPLICATIONS

- Closed-die forgings and large forged bars for the aerospace industry.
- This alloy has been specifically designed for structural components subject to high fatigue stress and risk of corrosion.

CHARACTERISTICS

- This alloy used in the over-aged T74 condition achieves a good balance between mechanical properties (strength, toughness and fatigue) and stress corrosion resistance.
- In the over-aged T76 condition, it is particularly resistant to exfoliation corrosion.
- Its good hardenability makes it suitable for producing thick parts

HEAT TREATMENT

- Solution treatment 475°C
- Water Quench
- Age between 100 and 180°C depending on properties required and the section of the component.
- The over-aged T74 and T76 conditions are the most common and are defined in Standard NF EN 515.
- Closed die forgings can be stress relieved between solution treatment and aging.
- T7452 and T7652 stress relieved by compression before T74 over-aging, and T7454 and T7654 achieved by further cold closed die forging, are the most common conditions. These are defined in Standard NF EN 515.

PHYSICAL PROPERTIES

- Density: 2.83

- Modulus of elasticity in N/mm^2:
  - at 20°C: 71.5×10^3

- Mean coefficient of expansion in m/m.°C:
  - between 20°C and 100°C: 23.5×10^{-6}
  - between 20°C and 200°C: 24.4×10^{-6}
  - between 20°C and 300°C: 25.4×10^{-6}

- Thermal conductivity in $W.m/m^2.°C$:
  - at 20°C: 154 (T76 conditions)

- Mean specific heat in J/g°C:
  - between 0°C and 100°C: 0.86

- Electrical resistivity in $\mu\Omega.cm^2/cm$
  - at 20°C: 4.36 (T76 condition)

- Electrical conductivity in S/m:
  - at 20°C: $>23 \times 10^6$ (T76 condition)

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