AUBERT&DUVAL

Aluminium alloy

7010

Al Zn6MgCu

SPECIFICATIONS

European Standards:

- EN AW-7010 (Al Zn6MgCu)

UNS : A97010

COMPOSITION

Zinc	6.20
Magnesium	2.30
Copper	1.75
Zirconium	0.13
Aluminum	Base

TYPICAL MECHANICAL PROPERTIES

- T7452 condition. 120/150 mm thickness

-Tensile test at ambient temperature, longitudinal direction

- UTS:	>475 N/mm^2
- 0.2 % Yield strength:	>400 N/mm^2
- Elongation (5d):	>8 %
- K1c (L -T direction):	>27 MPa$\sqrt{m}$

- T74 condition. 100/125 mm thickness

-Tensile test at ambient temperature, longitudinal direction

- UTS:	>485 N/mm^2
- 0.2 % Yield strength:	>420 N/mm^2
- Elongation (5d):	>7 %
- K1c (L -T direction):	>27 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 of European origin has properties similar to that of American grade 7050.
  For all over-aged T74 and T76 conditions it achieves a balance between mechanical properties (strength, toughness, fatigue) and resistance to stress corrosion

HEAT TREATMENT

- Solution treatment
- Water Quench
- Age depending on properties required and the size of the parts.
- 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 (T74 condition)

- 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 (T74 condition)

- Electrical conductivity in S/m:
  - at 20°C: $>23 \times 10^6$ (T4 condition)

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