Aluminum alloy

2219
Al Cu6Mn

Specifications

Previous AFNOR designation:
- AU6MT

European standard: EN AW-2219 [Al Cu6Mn]

AECMA:
- Designation: AL-P2219

UNS: A92219

Mechanical Properties

- Forged T6 condition. Thickness < 100mm
  - Tensile test at ambient temperature, longitudinal direction
    - UTS: > 400 N/mm²
    - 0.2 % Yield strength: > 276 N/mm²
    - Elongation (5d): > 5 %

- T851, T852 and T854 conditions open or closed-die forged. 100/200mm thickness
  - Tensile test at ambient temperature, longitudinal direction
    - UTS: > 395 N/mm²
    - 0.2 % Yield strength: > 300 N/mm²
    - Elongation (5d): > 6 %

Composition

Copper ..............................................6.30
Manganese ........................................0.30
Zirconium ........................................0.18
Vanadium .........................................0.10
Titanium ..........................................0.06
Aluminum ........................................Base

Applications

- Supersonic aircraft structures and space industry applications.

Characteristics

- High toughness.
- In the T8 condition (cold worked and aged), this alloy has excellent stress corrosion resistance.
- Weldable.
**HEAT TREATMENT**

- Solution treatment 535°C.
- Water quench.
- Age from 165°C to 195°C to give the properties required.
- The most common conditions are T851, T852 and T854. These are defined in Standard NF EN 515.

**PHYSICAL PROPERTIES**

- Density: 2.84

- Modulus of elasticity in N/mm²:
  - at 20°C: 73.8 x 10³

- Mean coefficient of expansion in m/m.°C:
  - between (-50°C) and 20°C: 20.8 x 10⁻⁴
  - between 20°C and 100°C: 22.5 x 10⁻⁴
  - between 20°C and 200°C: 23.4 x 10⁻⁴
  - between 20°C and 300°C: 24.4 x 10⁻⁴

- Thermal conductivity in W.m/m.°C:
  - at 20°C: 130 (T62, T81 and T87 conditions)

- Mean specific heat in J/g.°C:
  - at 20°C: 0.86

- Electrical resistivity in µΩ.cm²/cm:
  - at 20°C: 5.7 (T62, T81 and T87 conditions)

- Electrical conductivity in S/m:
  - at 20°C: 17.4 x 10⁶ (T62, T81 and T87 conditions)

---

AUBERT & DUVAL

Tour Maine Montparnasse
33, avenue du Maine • 75755 Cedex 15
www.aubertduval.com

The data provided in this document represent typical or average values rather than maximum or minimum guaranteed values. The applications indicated for the grades described are given as guidance only in order to help the reader in his personal assessment. Please note that these do not constitute a guarantee whether implicit or explicit as to whether the grade selected is suited to specific requirements. Aubert & Duval's liability shall not under any circumstances extend to product selection or to the consequences of that selection.