Ti-6Al-4V

**SPECIFICATION**

UNS: R56400

**MECHANICAL PROPERTIES**

- Annealed condition:
  - Tensile test at ambient temperature
    - UTS: 1100 N/mm²
    - 0.2 % Yield strength: 1040 N/mm²
    - Elongation (5d): 10 %

**COMPOSITION**

- Aluminum: 6.00
- Vanadium: 4.00
- Carbon: < 0.08
- Iron: < 0.30
- Oxygen: < 0.20
- Nitrogen: < 0.07
- Titanium: Base

**APPLICATIONS**

- Aerospace industry: discs, compressor blades, structural parts, fasteners for low and high temperature environments etc.
- Chemical industries.

**CHARACTERISTICS**

- This titanium alloy has good resistance to fatigue, crack propagation, corrosion and creep (up to 300°C).
- Alpha-beta titanium alloy.
**HEAT TREATMENT**

- Anneal (Normally this alloy is used in the annealed condition):
  - Heat to 700 / 750°C
  - hold 2 to 4 hours depending on section
  - air cool

- Heat treated (for section < 40 mm):
  - Solution treatment
  - Heat to 825 / 950°C, water cool.
  - Ageing
  - In the range 450-590°C, depending on properties required

**PHYSICAL PROPERTIES**

- Density: 4.43
- Mean coefficient of expansion in m/m.°C:
  - between 20°C and 200°C: 9.00 x 10^{-6}
- Modulus of elasticity in N/mm²:
  - at 20°C: 110 x 10^3
- Torsional modulus in N/mm²: 45000
- Thermal conductivity in W.m/m.°C:
  - at 20°C: 6.7
- Electrical resistivity in µΩ.cm²/cm:
  - at 20°C: 170
- Absolute magnetic permeability in H/m: 1.26 x 10^{-6}
- Critical point:
  - Beta Transus: 1000°C

**FORGING**

- Breakdown temperature: 1050°C - 1100°C
- Finishing temperature: 850°C - 950°C

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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.