



Titanium Alloy

TA6V

Ti-6Al-4V

Previous brand name: TITAL 318

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: 9.00×10^{-6}
- Modulus of elasticity in N/mm²:
 - at 20°C: 110×10^3
- Torsional modulus in N/mm²: 45000
- Thermal conductivity in W.m/m².°C:
 - at 20°C: 6.7
- Electrical resistivity in $\mu\Omega.cm^2/cm$:
 - at 20°C: 170
- Absolute magnetic permeability in H/m: 1.26×10^{-6}
- Critical point:
 - Beta Transus: 1000°C

FORGING

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

AUBERT & DUVAL

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

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