TECHNICAL DATA SHEET

Ti-6Al-4V (Grade 5)

Alpha-Beta Titanium Alloy

VTECH
MATERIALS LIBRARY

Document Control

Document No.	TDS-TI-64-AMS4928	**Revision**	A
Issue Date	2026-04-07	**Owner**	Engineering
Specification	AMS 4928 / ASTM B348 Grade 5 by product form	**Product Form / UNS**	Bar, forging, plate, ring by product form/spec / UNS R56400

Engineering use note: Starter-library values are intended for engineering screening and template standardization. Verify against the latest governing specification, drawing, PO, and MTR before production release.

1. General Description

Ti-6Al-4V is the most widely used high-strength titanium alloy and provides an excellent combination of specific strength, corrosion resistance, and biocompatibility. It is used extensively in aerospace, energy, and high-performance engineering components.

2. Chemical Composition (wt%)

Property	Value
Aluminum (Al)	5.5-6.75
Vanadium (V)	3.5-4.5
Iron (Fe)	<=0.40
Oxygen (O)	<=0.20
Carbon (C)	<=0.08
Nitrogen (N)	<=0.05
Hydrogen (H)	<=0.015
Titanium (Ti)	Balance

3. Mechanical Properties

Property	Value
Condition	Annealed typical wrought
Ultimate tensile strength	>= 895 MPa

Property	Value
0.2% yield strength	>= 828 MPa
Elongation	>= 10 %
Hardness	Approx. 30-36 HRC typical wrought

4. Physical Properties

Property	Value
Density	4.43 g/cm3
Elastic modulus	114 GPa
Thermal conductivity	6.7 W/m.K
Beta transus	Approx. 995 C

5. Heat Treatment / Processing

Ti-6Al-4V can be annealed, stress relieved, or solution treated and aged depending on section size and the governing specification. Processing route has a major effect on microstructure and fatigue performance.

6. Corrosion / Environmental Performance

Excellent resistance in many marine, oxidizing, and biological environments. Care is required regarding galling, hydrogen pickup, and contamination during fabrication and heat treatment.

7. Key Characteristics

- High strength-to-weight ratio
- Excellent corrosion resistance
- Good fatigue capability
- Good fracture toughness with proper processing
- Widely available aerospace titanium alloy

8. Typical Applications

- Airframe and engine components
- Fasteners
- Biomedical hardware
- High-performance motorsport components
- Offshore and chemical service parts

9. Standards & Equivalents

AMS 4928
ASTM B348 Grade 5
UNS R56400

10. Notes & Limitations

Titanium fabrication quality is highly sensitive to contamination, surface condition, and thermal history. Confirm the required product form and condition before production release.