

We are a worldwide supplier of Grade 5 Titanium - It is one of the most popular alloys in the titanium industry and accounts for almost half of the titanium used in the world today. Commonly referred to as Ti-6AL-4V (or Ti 6-4), this designation refers to its chemical composition of almost 90% titanium, 6% aluminum, 4% vanadium, 0.25% (max) iron and 0.2% (max) oxygen. It features excellent strength, low modulus of elasticity, high corrosion resistance, good weldability and it is heat treatable. The addition of aluminum and vanadium increases the hardness of the material in the alloy matrix, improving its physical and mechanical properties.

Nominal Composition

Ti	Titanium – 90.00%
Al	Aluminum – 6%
V	Vanadium – 4.00%
C	Carbon - < 0.10%
O	Oxygen - < 0.20%
N	Nitrogen - < 0.05%
H	Hydrogen - < 0.0125%
Fe	Iron - < 0.3%

Percent by weight, maximum unless a range is listed.

Standard Inventory Specifications for Sheet, Coil, and Plate

- AMS 4911
- AMS-T-9046 A
- UNS R56400
- ASTM F 1472 (surgical implants)
- ASTM B 265 GR 5
- MIL-T-9046

Standard Inventory Specifications for Ti-6Al-4V round bar

- AMS 4928
- AMS 4967
- AMS 4965
- AMS 6931
- ASTM B 348 GR5
- MIL-T-9047

Forms Stocked

- Sheet, Coil, Bar and Plate

Thickness Stocked

- 0.250" – 8.500" – Bar
- 0.012" – 0.125" – Coil
- 0.012" – 0.125" – Sheet
- 0.025" – 4.000" – Plate



Call 1.888.282.3292

Or click here to view our product page and request a quote on Ti-6Al-4V grade 5 titanium

Industry Applications

- Aerospace
- Base plates
- Fasteners
- Chemical processing
- Medical implants

*The technical data provided is for information only and not for design purposes. It is not warranted or guaranteed.

Physical Properties

Ti-6AL-4V is a non-magnetic, two-phase alloy, containing both alpha and beta phase crystalline structures. This high strength grade can be used at cryogenic temperatures to about 800°F (427°C). Ti-6Al-4V bar to AMS 4928 requires 120,000 psi minimum yield strength at room temperature. Grade 5 Titanium can be used in the annealed condition or in the solution treated and aged condition. Ti 6Al-4V Grade 5 Titanium bar stock has outstanding corrosion resistance to most media including nitric acid in all concentrations to boiling point, in seawater, and to alkalis in all concentrations to boiling point. Stress corrosion cracking may occur if chlorine salts are present on stressed parts subsequently subjected to high temperatures. Ti 6Al-4V Grade 5 Titanium has acceptable oxidation resistance up to 1000°F (538°C).

Property	Value
Density	0.16lbs./in ³ , 4.43 g/cm ³
Specific Heat	0.135 (Btu/lb./ °F (32-212)
Electrical Resistivity	171 (Microhm-cm at 68°F)
Melting Point	3200°F
Thermal Conductivity	3.9
Modulus of Elasticity Tension	16.5
Beta Transus	1830 (°F +/- 25)

Mechanical Properties

Hardness of stock is typically 300 BHN. The strength and hardness of the mill-annealed product may be increased by approximately 20% after an aging heat treatment. After aging at 975 to 1025°F (524-552°C), Grade 5 Titanium bar yield strength is 150,000 psi and typical hardness is 360 BHN.

Property	Value
Hardness Brinell	334
Hardness Rockwell C	36
Ultimate Tensile Strength	131000 psi
Yield Strength	120000 psi
Machinability Rating	22% of B 112
Typical stock removal rate	30 surface ft./minute

Comments

Tooling should consist of tungsten carbide designations C1-C4 or cobalt type high speed tools. Generally, machining characteristics are similar to those of austenitic stainless steels. Ti 6AL-4V Grade 5 Titanium bar stock can be machined using slow speeds, high feed rates, rigid tooling, and flooding the workpiece with non-chlorinated cutting fluid.