



Grade	Code	UNS	Titanium
Ti3Al2.5V	ASTM Grade 9	R56320	

Titanium Properties

Ti3Al2.5V, designated as ASTM Grade 9 and UNS R56320, is a medium-strength $\alpha+\beta$ titanium alloy. It combines low density with a high strength-to-weight ratio, good fatigue resistance, corrosion resistance, cold formability, and weldability.

Chemical Analysis (Ti3Al2.5V)

Al %	V %	Fe %	O %	C %	N %	H %	Ti %
2.50–3.50	2.00–3.00	≤0.25	≤0.15	≤0.08	≤0.03	≤0.015	Balance

Mechanical Properties (Annealed)

Product form	Rp0.2 [MPa]	Rm [MPa]	Elongation [%]	Hardness [HB]	Density [g/cm ³]
Bar	≥483	≥620	≥15	≈200*	4.48
Sheet	≥483	≥620	≥15	≈200*	4.48

* Approximately 200 HB is a typical material value; it is not a mandatory acceptance criterion under ASTM B265 or ASTM B348. Hardness may vary depending on the manufacturing method, section size, and annealing cycle.

Applications

Industry	Products
Aerospace	Hydraulic and pneumatic system tubing, fuel lines, titanium foil for honeycomb panels
Chemical and process industry	Process piping, pressure-vessel components, chlorate-production equipment
Marine and desalination	Seawater cooling pipes, heat-exchanger tubes, desalination-plant piping systems
Sports equipment	Bicycle frames, golf-club shafts, tennis-racket frames
Medical and dental	Surgical implant tubes, orthopedic implant components, dental implant components
Automotive and motorsports	Lightweight exhaust systems, chassis support tubes, suspension components
Industrial pressure systems	High-pressure tubes, hydraulic lines, pressure-system fittings

Description

Ti3Al2.5V performance is determined not only by its chemical composition but also by the cold-forming and heat-treatment operations applied during production. Controlled cold working and stress relieving can increase strength and fatigue resistance while retaining the material's formability. Particularly in



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tube production, controlled orientation of the internal structure limits crack initiation and propagation under repeated loading. Therefore, the delivery condition, product dimensions, and applicable specification should be clearly stated in purchase orders.

Norms

Ti3Al2.5V, Titanium Grade 9, ASTM Grade 9, UNS R56320

Standards

Product form	ASTM	AMS
Bar	ASTM B348/B348M Grade 9	AMS 6940C
Plate	ASTM B265 Grade 9	AMS 4989E
Seamless tube/pipe	ASTM B338 Grade 9, ASTM B861 Grade 9	AMS 4943, AMS 4944, AMS 4945, AMS 4946
Welded tube/pipe	ASTM B338 Grade 9, ASTM B862 Grade 9	—

Other Grades to Consider

1. Ti6Al4V
2. TiGr2