

3Al-2.5V (Grade 9)

Smiths Advanced Metals

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Titanium Tube

A titanium alloy including 3% aluminium and 2.5% vanadium.

3Al-2.5V (Grade 9) titanium tube offers 20 - 50% greater mechanical strength when compared to commercially pure titanium alloys at room and elevated temperatures.

3Al-2.5V as a cold-worked and heat-treated titanium alloy provides excellent properties in aggressive chloride-containing environments. The alloy finds use in hydraulic tubes found in aerospace applications and the manufacture of high-performance bicycle frames. This material offers good ductility, toughness and corrosion resistance.

Smiths Advanced Metals stocks [3Al-2.5V \(Grade 9\) titanium tube](#) in various sizes and seamless forms.

Grades / Specifications

■ ABS5004	■ ASTM B861
■ AMS4943, AMS4944	■ BMS 7-234
■ AMS4945, AMS4946	■ DMS2241
■ ASTM B338	■ GEB50TF35

Benefits

- Excellent resistance to erosion corrosion
- Good weldability
- Good formability



Key Applications

- Bicycle frames
- Heat exchangers
- Medical components

*Chemical Composition (weight %)

	Ti	C	N	O	H	V	Al	Fe	Y	Others (each)	Others (total)
min.	Bal					2.00	2.50				
max.	Bal	0.05	0.02	0.12	0.005	3.00	3.50	0.30	0.005	0.10	0.40

* As per AMS 4943

*Physical & Mechanical Properties

Density	4.48 g/cm ³
Specific Heat (0-100°C)	427 J .kg ⁻¹ .°K ⁻¹
Thermal Conductivity	7.6 W.m ⁻¹ .°K ⁻¹
Thermal Expansion	7.9 mm/m/°C
Modulus Elasticity	107 GPa
Electrical Resistivity	12.6 μohm/cm
Tensile Strength	621 MPa (min.)
0.2% Yield Strength	517 MPa (min.)
Elongation	15% (min.)

* Properties as per AMS 4943

Thermal Expansion

3Al-2.5V (Grade 9) titanium tube has very low thermal expansion.

As a result of such low expansion rates, weldability and formability is excellent. The alloy is more malleable when compared to Grade 5 titanium (6Al-4V). The material also benefits from excellent resistance to pitting, crevice and erosion-corrosion. Smiths Advanced also added further value by processing your titanium tubes in-house.

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