



ASM Aerospace Specification Metals Inc.



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Titanium Ti-3Al-2.5V, alpha annealed

Subcategory: Alpha/Near Alpha Titanium Alloy; Metal; Nonferrous Metal; Titanium Alloy

Key Words: Ti3Al2.5V, UNS R56320; ASTM Grade 9; Half 6-4; Tubing Alloy

Component	Wt. %
Al	3
Ti	95
V	2.5

Material Notes:

Information provided by Allvac and the references. Alpha annealed.

Applications: Excellent cold formability, 20-50% higher tensile properties than CP titanium grades. Primarily used in aircraft hydraulic systems.

Physical Properties	Metric	English	Comments
Density	<u>4.48 g/cc</u>	0.162 lb/in ³	

Mechanical Properties

Hardness, Brinell	256	256	Estimated from Rockwell C.
Hardness, Knoop	278	278	Estimated from Rockwell C.
Hardness, Rockwell C	24	24	
Hardness, Vickers	280	280	
Tensile Strength, Ultimate	<u>620 MPa</u>	89900 psi	
Tensile Strength, Yield	<u>500 MPa</u>	72500 psi	
Elongation at Break	<u>15 %</u>	15 %	
Modulus of Elasticity	<u>100 GPa</u>	14500 ksi	In Tension
Compressive Yield Strength	<u>690 MPa</u>	100000 psi	
Notched Tensile Strength	<u>790 MPa</u>	115000 psi	K _t (stress concentration factor) = 6.3
Poisson's Ratio	0.3	0.3	

Charpy Impact	<u>86 J</u>	63.4 ft-lb	V-notch
Fatigue Strength	<u>170 MPa</u>	24700 psi	at 1E+7 cycles. K_t (stress concentration factor) = 1.8
Fatigue Strength	<u>280 MPa</u>	40600 psi	50,000 cycles. K_t (stress concentration factor) = 1.8
Fatigue Strength	<u>280 MPa</u>	40600 psi	1E+7 cycles, Unnotched
Fatigue Strength	<u>380 MPa</u>	55100 psi	40,000 cycles, Unnotched
Fracture Toughness	<u>100 MPa-m^{1/2}</u>	91 ksi-in ^{1/2}	kJ/m ² for J(IC)
Shear Modulus	<u>44 GPa</u>	6380 ksi	

Electrical Properties

Electrical Resistivity	<u>0.000127 ohm-cm</u>	0.000127 ohm-cm
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Thermal Properties

CTE, linear 20°C	<u>9.61 μm/m-°C</u>	5.34 μin/in-°F	20-95°C
CTE, linear 250°C	<u>9.86 μm/m-°C</u>	5.48 μin/in-°F	20-315°C; 9.67 in range 20-205°C
CTE, linear 500°C	<u>9.97 μm/m-°C</u>	5.54 μin/in-°F	Average over the range 20-540°C
Specific Heat Capacity	<u>0.525 J/g-°C</u>	0.125 BTU/lb-°F	Typical value for titanium alloys.
Thermal Conductivity	<u>8.3 W/m-K</u>	57.6 BTU-in/hr-ft ² -°F	Value at 315°C is 11.8 W/m-°C
Melting Point	<u>Max 1700 °C</u>	Max 3090 °F	Liquidus
Liquidus	<u>1700 °C</u>	3090 °F	
Beta Transus	<u>935 °C</u>	1720 °F	

References for this datasheet.

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error.