



ASM Aerospace Specification Metals Inc.



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## Titanium Ti-8Al-1Mo-1V (Ti-8-1-1) Duplex Anneal

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

**Key Words:** Ti8Al1Mo1V, DA, UNS R54810; Ti-811

### Component Wt. %

Al	8
Mo	1
Ti	90
V	1

### Material Notes:

Information provided by Allvac and the references. Duplex Anneal: 980°C 4h; air cool; 540°C 24 h; air cool.

**Applications:** Fan & compressor blades, discs, spacers, seals, rings. Excellent creep resistance.

Physical Properties	Metric	English	Comments
Density	<u>4.37 g/cc</u>	0.158 lb/in <sup>3</sup>	

### Mechanical Properties

Hardness, Brinell	326	326	Estimated from Rockwell C.
Hardness, Knoop	354	354	Estimated from Rockwell C.
Hardness, Rockwell C	35	35	
Hardness, Vickers	341	341	Estimated from Rockwell C.
Tensile Strength, Ultimate	900 - 1000 MPa	131000 - 145000 psi	
Tensile Strength, Yield	830 - 951 MPa	120000 - 138000 psi	
Modulus of Elasticity	<u>124 GPa</u>	18000 ksi	
Poisson's Ratio	0.32	0.32	
Charpy Impact	20 - 34 J	14.8 - 25.1 ft-lb	V-notch
Fatigue Strength	<u>620 MPa</u>	89900 psi	3,000,000 cycles, Unnotched
Fatigue Strength	<u>724 MPa</u>	105000 psi	at 85,000 Cycles

Fracture Toughness	<a href="#">176 MPa-m<sup>1/2</sup></a>	160 ksi-in <sup>1/2</sup>	K(IC)
Fracture Toughness	<a href="#">374 MPa-m<sup>1/2</sup></a>	340 ksi-in <sup>1/2</sup>	K(C)
Shear Modulus	<a href="#">46 GPa</a>	6670 ksi	

### Electrical Properties

Electrical Resistivity	<a href="#">0.000198 ohm-cm</a>	0.000198 ohm-cm
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### Thermal Properties

CTE, linear 20°C	<a href="#">8.5 µm/m-°C</a>	4.72 µin/in-°F	
CTE, linear 250°C	<a href="#">9.2 µm/m-°C</a>	5.11 µin/in-°F	
CTE, linear 500°C	<a href="#">10.1 µm/m-°C</a>	5.61 µin/in-°F	
Specific Heat Capacity	<a href="#">0.502 J/g-°C</a>	0.12 BTU/lb-°F	
Thermal Conductivity	<a href="#">6 W/m-K</a>	41.6 BTU-in/hr-ft <sup>2</sup> -°F	
Melting Point	<a href="#">Max 1540 °C</a>	Max 2800 °F	Liquidus
Liquidus	<a href="#">1540 °C</a>	2800 °F	
Beta Transus	<a href="#">1038 °C</a>	1900 °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.