

TIMET TIMETAL® 6-2-4-2 (Ti-6Al-2Sn-4Zr-2Mo-0.08Si) Titanium Alloy

Category : Metal , Nonferrous Metal , Titanium Alloy , Alpha/Near Alpha Titanium Alloy

Material Notes:

Medium-Strength, Elevated Temperature Alloy Industry Specifications: USA Aerospace: AMS 4919. Features: TIMETAL 6-2-4-2 has good tensile creep and fatigue properties up to 540°C. It is the most commonly used high temperature alloy in jet engine compressors and airframe structures. It is also used in sheet melt form for engine afterburner structure and for various hot airframe skin applications. It is nonmagnetic. Typical heat treatment for this alloy: Rough forging: 1038°C. Stress relief anneal: 482-649°C for 1-4 hrs, air cool. Solution treatment: 15-30°C below beta transus for 1 hour, water quench. Aging: 538-593°C for 8 hrs, air cool. Data provided by TIMET.

Order this product through the following link:

http://www.lookpolymers.com/polymer_TIMET-TIMETAL-6-2-4-2-Ti-6Al-2Sn-4Zr-2Mo-008Si-Titanium-Alloy.php

Physical Properties	Metric	English	Comments
Density	4.54 g/cc	0.164 lb/in ³	Typical

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	1000 MPa	145000 psi	Typical
Tensile Strength, Yield	895 MPa @Strain 0.200 %	130000 psi @Strain 0.200 %	Typical
Elongation at Break	12 %	12 %	Typical
Reduction of Area	42 %	42 %	
Modulus of Elasticity	115 GPa	16700 ksi	Typical
Fatigue Strength	500 MPa	72500 psi	Limit; test specifics not reported
	500 MPa	72500 psi	Limit; test specifics not reported
Bend Radius, Minimum	4.5 t	4.5 t	Typical; on 0.078 in (2 mm) sheet

Thermal Properties	Metric	English	Comments
CTE, linear	7.70 μm/m-°C @Temperature 0.000 - 100 °C	4.28 μin/in-°F @Temperature 32.0 - 212 °F	
Thermal Conductivity	6.92 W/m-K	48.0 BTU-in/hr-ft ² -°F	
Melting Point	<= 1705 °C	<= 3101 °F	
Liquidus	1705 °C	3101 °F	
Maximum Service Temperature, Air	538 °C	1000 °F	Long Term

<small>Data Transpose</small> Thermal Properties	996 °C Metric	1820 °F English	Comments
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Component Elements Properties	Metric	English	Comments
Aluminum, Al	5.5 - 6.5 %	5.5 - 6.5 %	
Carbon, C	<= 0.080 %	<= 0.080 %	
Hydrogen, H	0.010 - 0.0125 %	0.010 - 0.0125 %	
Iron, Fe	<= 0.25 %	<= 0.25 %	
Molybdenum, Mo	1.8 - 2.2 %	1.8 - 2.2 %	
Nitrogen, N	<= 0.050 %	<= 0.050 %	
Oxygen, O	<= 0.15 %	<= 0.15 %	
Silicon, Si	0.060 - 0.13 %	0.060 - 0.13 %	
Tin, Sn	1.8 - 2.2 %	1.8 - 2.2 %	
Titanium, Ti	83.6 - 87.2 %	83.6 - 87.2 %	Calculated as remainder
Zirconium, Zr	3.6 - 4.4 %	3.6 - 4.4 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000185 ohm-cm	0.000185 ohm-cm	

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