

TIMET TIMETAL® 3-2.5 Titanium Alloy (Ti-3Al-2.5V; ASTM Grade 9) Typical Properties

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

Material Notes:

Cold Workable Medium Strength Alloy Features: Cold formable and weldable, this alloy is used primarily for honeycomb foil and hydraulic tubing applications. Industrial applications such as pressure vessels and piping also utilize this alloy. Available with palladium stabilization to enhance corrosion resistance. The alloy is cold formable and easily welded, such like the commercially pure grades of titanium. Yet the alloys offer nearly double the strength over TIMETAL 50A. It is ASME Boiler and Pressure Vessel code approved. It offers the highest structural efficiency of any of the common engineering metals approved by ASME. The alloy is available in all common product forms including billet, bar, plate, sheet, strip, tubing and pipe. It is nonmagnetic. Typical heat treatment for this alloy: Stress Relief: 316-649°C for .5-3 hrs, air cool. Anneal: 649-760°C for 1-3 hrs, air cool. Solution treat: 871-927°C for .25-1 hrs, water quench. Aging: 482-538°C for 2-8 hrs, air cool. Data provided by TIMET.

Order this product through the following link:

http://www.lookpolymers.com/polymer_TIMET-TIMETAL-3-25-Titanium-Alloy-Ti-3Al-25V-ASTM-Grade-9-Typical-Properties.php

Physical Properties	Metric	English	Comments
Density	4.51 g/cc	0.163 lb/in ³	Typical

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	650 MPa	94300 psi	Typical
Tensile Strength, Yield	550 MPa @Strain 0.200 %	79800 psi @Strain 0.200 %	Typical
Elongation at Break	15 %	15 %	Typical
Modulus of Elasticity	105 - 120 GPa	15200 - 17400 ksi	Typical
Poissons Ratio	0.30	0.30	
Fatigue Strength	325 MPa	47100 psi	Limit; test specifics not reported
Shear Modulus	43.0 - 45.0 GPa	6240 - 6530 ksi	
Bend Radius, Minimum	2.5 t	2.5 t	Typical; on 0.078 in (2 mm) sheet

Thermal Properties	Metric	English	Comments
CTE, linear	9.61 µm/m-°C @Temperature 20.0 - 95.0 °C	5.34 µin/in-°F @Temperature 68.0 - 203 °F	
Thermal Conductivity	8.30 W/m-K	57.6 BTU-in/hr-ft ² -°F	

Thermal Properties	@Temperature 20.0 - Metric 99.0 °C	@Temperature 68.0 - English 200 °F	Comments
Melting Point	1700 °C	3090 °F	
Beta Transus	935 °C	1720 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	2.5 - 3.5 %	2.5 - 3.5 %	
Carbon, C	<= 0.080 %	<= 0.080 %	
Hydrogen, H	<= 0.015 %	<= 0.015 %	
Iron, Fe	<= 0.25 %	<= 0.25 %	
Nitrogen, N	<= 0.030 %	<= 0.030 %	
Oxygen, O	<= 0.15 %	<= 0.15 %	
Titanium, Ti	92.6 - 95.5 %	92.6 - 95.5 %	Calculated as remainder
Vanadium, V	2.0 - 3.0 %	2.0 - 3.0 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000127 ohm-cm	0.000127 ohm-cm	

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