

TIMET TIMETAL® 6-2-4-6 Titanium Alloy (Ti-6Al-2Sn-4Zr-6Mo), 20% Elongated Alpha + STA

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

Material Notes:

This entry has UTS, TYS, Elongation, ROA, and fatigue values specific to material in the 20% Elongated Alpha + STA (885°C/1hr/AC + 595°C/8hr/AC) condition. Other data below are typical of TIMETAL® 6-2-4-6. High-Strength, Intermediate Temperature Alloy Features: TIMETAL 6-2-4-6 is a stronger derivative of TIMETAL 6-2-4-2 offering higher strength, depth hardenability and elevated temperature properties up to 450°C. This alloy is similar in forgeability and crack sensitivity to TIMETAL 6-4. This alloy is used in intermediate compressor stages of turbine engines for disks and blades, seals, and for airframe parts. It is nonmagnetic. Data provided by TIMET.

Order this product through the following link:

http://www.lookpolymers.com/polymer_TIMET-TIMETAL-6-2-4-6-Titanium-Alloy-Ti-6Al-2Sn-4Zr-6Mo-20-Elongated-Alpha-STA.php

Physical Properties	Metric	English	Comments
Density	4.64 g/cc	0.168 lb/in ³	Typical

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	1206 MPa	174900 psi	
Tensile Strength, Yield	1109 MPa	160800 psi	
Elongation at Break	11 %	11 %	
Reduction of Area	26 %	26 %	
Modulus of Elasticity	115 GPa	16700 ksi	Typical
Fatigue Strength	282 MPa	40900 psi	notched
	@# of Cycles 1.00e+7	@# of Cycles 1.00e+7	
	620 MPa	89900 psi	smooth
	@# of Cycles 1.00e+7	@# of Cycles 1.00e+7	

Thermal Properties	Metric	English	Comments
CTE, linear	9.00 µm/m-°C	5.00 µin/in-°F	
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	
Specific Heat Capacity	0.502 J/g-°C	0.120 BTU/lb-°F	
Thermal Conductivity	7.61 W/m-K	52.8 BTU-in/hr-ft ² -°F	
Melting Point	1595 - 1675 °C	2903 - 3047 °F	
Solidus	1595 °C	2903 °F	

Thermal Properties	Metric	English	Comments
Liquidus	1675 °C	3067 °F	
Beta Transus	940 °C	1720 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	5.5 - 6.5 %	5.5 - 6.5 %	
Carbon, C	<= 0.040 %	<= 0.040 %	
Hydrogen, H	<= 0.125 %	<= 0.125 %	
Iron, Fe	<= 0.15 %	<= 0.15 %	
Molybdenum, Mo	5.5 - 6.5 %	5.5 - 6.5 %	
Nitrogen, N	<= 0.040 %	<= 0.040 %	
Oxygen, O	<= 0.15 %	<= 0.15 %	
Tin, Sn	1.75 - 2.25 %	1.75 - 2.25 %	
Titanium, Ti	79.4 - 83.7 %	79.4 - 83.7 %	Calculated as remainder
Zirconium, Zr	3.6 - 4.4 %	3.6 - 4.4 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000190 - 0.000205 ohm-cm	0.000190 - 0.000205 ohm-cm	

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