

TIMET 6-4 Titanium Alloy (Ti-6Al-4V; ASTM Grade 5),

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

Material Notes:

Medium To High Strength General-Purpose Alloy. Minimum tensile property data below are specific to

Order this product through the following link:

http://www.lookpolymers.com/polymer_TIMET-6-4-Titanium-Alloy-Ti-6Al-4V-ASTM-Grade-5.php

Physical Properties	Metric	English	Comments
Density	4.42 g/cc	0.160 lb/in ³	Typical

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	>= 1137 MPa	>= 164900 psi	
Tensile Strength, Yield	>= 1068 MPa @Strain 0.200 %	>= 154900 psi @Strain 0.200 %	
Elongation at Break	>= 10 %	>= 10 %	
Reduction of Area	>= 20 %	>= 20 %	
Modulus of Elasticity	105 - 120 GPa	15200 - 17400 ksi	Typical
Poissons Ratio	0.31	0.31	
Shear Modulus	41.0 - 45.0 GPa	5950 - 6530 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	9.00 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature 0.000 - 100 $^{\circ}\text{C}$	5.00 $\mu\text{in}/\text{in}\cdot\text{F}$ @Temperature 32.0 - 212 $^{\circ}\text{F}$	
	9.40 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature 20.0 - 425 $^{\circ}\text{C}$	5.22 $\mu\text{in}/\text{in}\cdot\text{F}$ @Temperature 68.0 - 797 $^{\circ}\text{F}$	
	9.70 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature 20.0 - 650 $^{\circ}\text{C}$	5.39 $\mu\text{in}/\text{in}\cdot\text{F}$ @Temperature 68.0 - 1200 $^{\circ}\text{F}$	
Specific Heat Capacity	0.586 J/g- $^{\circ}\text{C}$	0.140 BTU/lb- $^{\circ}\text{F}$	
Thermal Conductivity	6.60 W/m-K	45.8 BTU-in/hr-ft ² - $^{\circ}\text{F}$	
Melting Point	1674 $^{\circ}\text{C}$	3045 $^{\circ}\text{F}$	
Liquidus			

Thermal Properties	^{≥ 1636 °C} Metric	^{≥ 2977 °F} English	Comments
Maximum Service Temperature, Air	350 °C	662 °F	Reasonable mechanical properties retained
Beta Transus	995 °C	1820 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	5.5 - 6.75 %	5.5 - 6.75 %	
Carbon, C	≤ 0.080 %	≤ 0.080 %	
Hydrogen, H	≤ 0.015 %	≤ 0.015 %	
Iron, Fe	≤ 0.40 %	≤ 0.40 %	
Nitrogen, N	≤ 0.050 %	≤ 0.050 %	
Oxygen, O	≤ 0.20 %	≤ 0.20 %	
Titanium, Ti	87.6 - 91 %	87.6 - 91 %	as remainder
Vanadium, V	3.5 - 4.5 %	3.5 - 4.5 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000168 ohm-cm	0.000168 ohm-cm	
Magnetic Permeability	1.00005	1.00005	at 20 oersteds

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