

## TIMET 10-2-3 Titanium Alloy (Ti-10V-2Fe-3Al), Aged Billet/Bar per ASTM 4984

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

### Material Notes:

High-Strength Forging Alloy. Industry Specifications: USA Aerospace: AMS 4984. Features: A readily forgeable alloy that offers excellent combinations of strength, ductility, fracture toughness and high cycle fatigue strength. Typically used for critical aircraft structures, such as landing gear. Typical heat treatment for this alloy: Solution heat treat: 28-56°C below beta transus for a minimum for 30 mins, then water quench. Aging heat treatment: 482-593°C for 8 hrs, air cool. Data provided by TIMET.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_TIMET-10-2-3-Titanium-Alloy-Ti-10V-2Fe-3Al-Aged-BilletBar-per-ASTM-4984.php](http://www.lookpolymers.com/polymer_TIMET-10-2-3-Titanium-Alloy-Ti-10V-2Fe-3Al-Aged-BilletBar-per-ASTM-4984.php)

Physical Properties	Metric	English	Comments
Density	4.65 g/cc	0.168 lb/in <sup>3</sup>	Typical

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	1260 MPa	183000 psi	Typical
Tensile Strength, Yield	1170 MPa @Strain 0.200 %	170000 psi @Strain 0.200 %	Typical
Elongation at Break	10 %	10 %	Typical
Modulus of Elasticity	107 GPa	15500 ksi	Typical
Compressive Yield Strength	>= 1145 MPa	>= 166100 psi	
Ultimate Bearing Strength	>= 1613 MPa	>= 233900 psi	e/D = 1.5
	>= 1958 MPa	>= 284000 psi	e/D = 2.0
Bearing Yield Strength	>= 1565 MPa	>= 227000 psi	e/D = 1.5
	>= 1800 MPa	>= 261000 psi	e/D = 2.0
Poissons Ratio	0.32	0.32	
Fatigue Strength	945 MPa	137000 psi	Limit; test specifics not reported
	490 MPa @# of Cycles 1.00e+7	71100 psi @# of Cycles 1.00e+7	Notched (Kt = 3); Stress Ratio = 0.1; Axial Loading;
	910 MPa @# of Cycles 1.00e+7	132000 psi @# of Cycles 1.00e+7	Smooth (Kt = 1); Stress Ratio = 0.1; Axial Loading
Fracture Toughness	>= 44.0 MPa-m <sup>1/2</sup>	>= 40.0 ksi-in <sup>1/2</sup>	ST then Aged 8 hrs
Shear Modulus	42.1 GPa	6110 ksi	

Mechanical Properties	Metric	English	Comments
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Thermal Properties	Metric	English	Comments
CTE, linear	9.70 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	5.39 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 20.0 $^\circ\text{C}$	@Temperature 68.0 $^\circ\text{F}$	
Beta Transus	800 $^\circ\text{C}$	1470 $^\circ\text{F}$	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	2.6 - 3.4 %	2.6 - 3.4 %	
Carbon, C	$\leq 0.050$ %	$\leq 0.050$ %	
Hydrogen, H	$\leq 0.015$ %	$\leq 0.015$ %	
Iron, Fe	1.6 - 2.2 %	1.6 - 2.2 %	
Nitrogen, N	$\leq 0.050$ %	$\leq 0.050$ %	
Oxygen, O	$\leq 0.13$ %	$\leq 0.13$ %	
Titanium, Ti	83 - 86.8 %	83 - 86.8 %	Calculated as remainder
Vanadium, V	9.0 - 11 %	9.0 - 11 %	

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