

TIMET TIMETAL® 834 (Ti-5.8Al-4Sn-3.5Zr-0.7Nb-0.5Mo-0.35Si-0.06C) Titanium Alloy

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

Material Notes:

High-Strength, High Temperature, Creep Resistant Alloy Industry Specifications: France: T-A6EZ r4Nb. Features: TIMETAL 834 is a near alpha titanium alloy offering increased tensile strength and creep resistance up to 600°C together with improved fatigue strength when compared with established creep resistant alloys such as TIMETAL 6-2-4-2, TIMETAL 829 and TIMETAL 685. Like these alloys, it is weldable and has good forgeability. Major uses for TIMETAL 834 include rings, compressor discs and blades for aeroengines. It is nonmagnetic. Typical heat treatment for this alloy: Solution heat treatment: 1015°C for 2 hours, oil quench. Aging heat treatment: 700°C for 2 hours, air cool. Data provided by TIMET.

Order this product through the following link:

http://www.lookpolymers.com/polymer_TIMET-TIMETAL-834-Ti-58Al-4Sn-35Zr-07Nb-05Mo-035Si-006C-Titanium-Alloy.php

Physical Properties	Metric	English	Comments
Density	4.55 g/cc	0.164 lb/in ³	Typical

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	1050 MPa	152000 psi	Typical
Tensile Strength, Yield	930 MPa @Strain 0.200 %	135000 psi @Strain 0.200 %	Typical
Elongation at Break	11 %	11 %	Typical
Reduction of Area	>= 15 %	>= 15 %	
Modulus of Elasticity	120 GPa	17400 ksi	Typical
Notched Tensile Strength	>= 1493 MPa	>= 216500 psi	Kt=3
Fatigue Strength	<= 350 MPa @# of Cycles 1.00e+7	<= 50800 psi @# of Cycles 1.00e+7	Notched; Kt = 2; stress range 0 to 350 Mpa
	560 MPa @# of Cycles 1.00e+7	81200 psi @# of Cycles 1.00e+7	unnotched, stress range 0 to 560 Mpa
Fracture Toughness	>= 45.0 MPa-m ^{1/2}	>= 41.0 ksi-in ^{1/2}	K(IC)
Bend Radius, Minimum	6.0 t @Thickness 2.00 mm	6.0 t @Thickness 0.0787 in	Typical; sheet

Thermal Properties	Metric	English	Comments
	10.6 µm/m-°C	5.89 µin/in-°F	

Thermal Properties	Metric	English	Comments
	@ Temperature 20.0 - 200 °C	@ Temperature 68.0 - 392 °F	
	10.9 µm/m-°C	6.06 µin/in-°F	
	@Temperature 20.0 - 400 °C	@Temperature 68.0 - 752 °F	
	10.9 µm/m-°C	6.06 µin/in-°F	
	@Temperature 20.0 - 600 °C	@Temperature 68.0 - 1110 °F	
Thermal Conductivity	7.06 W/m-K	49.0 BTU-in/hr-ft ² -°F	
Maximum Service Temperature, Air	600 °C	1110 °F	Good tensile and creep to 600°C
Beta Transus	1045 °C	1913 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	5.5 - 6.1 %	5.5 - 6.1 %	
Carbon, C	0.040 - 0.080 %	0.040 - 0.080 %	
Hydrogen, H	<= 0.0060 %	<= 0.0060 %	
Iron, Fe	<= 0.050 %	<= 0.050 %	
Molybdenum, Mo	0.25 - 0.75 %	0.25 - 0.75 %	
Niobium, Nb (Columbium, Cb)	0.50 - 1.0 %	0.50 - 1.0 %	
Nitrogen, N	<= 0.030 %	<= 0.030 %	
Oxygen, O	0.075 - 0.15 %	0.075 - 0.15 %	
Silicon, Si	0.20 - 0.60 %	0.20 - 0.60 %	
Tin, Sn	3.0 - 5.0 %	3.0 - 5.0 %	
Titanium, Ti	81 - 87.4 %	81 - 87.4 %	Calculated as remainder
Zirconium, Zr	3.0 - 5.0 %	3.0 - 5.0 %	

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