TIMET TIMETAL® 829 (Ti-5.5Al-3.5Sn-3Zr-1Nb-0.25Mo-0.3Si) Titanium Alloy

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

Material Notes:

Weldable, High Strength, High Temperature, Creep Resistant AlloyFeatures: TIMETAL 829 combines creep resistance up to 540°C with good oxidation resistance. It is weldable and like TIMETAL 685, TIMETAL 829 has good forgeability. It is nonmagnetic.Typical heat treatment for this alloy: Solution heat treat: 1050°C for 30 mins, air cool. Aging heat treatment: 625°C for 2 hours, air cool.Data provided by TIMET.

Order this product through the following link:
http://www.lookpolymers.com/polymer_TIMET-TIMETAL-829-Ti-55Al-35Sn-3Zr-1Nb-025Mo-03Si-Titanium-Alloy.php

Physical Properties	Metric	English	Comments
Density	4.51 g/cc	0.163 lb/in³	Typical

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	>= 930 MPa	>= 135000 psi	Typical
Tensile Strength, Yield	860 MPa @Strain 0.200 %	125000 psi @Strain 0.200 %	Typical
Elongation at Break	10 %	10 %	Typical
Reduction of Area	>= 15 %	>= 15 %	
Modulus of Elasticity	120 GPa	17400 ksi	Typical
Notched Tensile Strength	>= 1488 MPa	>= 215800 psi	Kt=3
Fatigue Strength	775 MPa @# of Cycles 100000	112000 psi @# of Cycles 100000	Forging with stress range 0-775 Mpa
	1000 MPa @# of Cycles 1000	145000 psi @# of Cycles 1000	Forging with stress range 0-1000 Mpa
Fracture Toughness	>= 78.0 MPa-m½	>= 71.0 ksi-in½	K(IC)

Thermal Properties	Metric	English	Comments
CTE, linear	9.45 µm/m-°C @Temperature 20.0 - 200 °C	5.25 µin/in-°F @Temperature 68.0 - 392 °F	
	9.77 µm/m-°C @Temperature 20.0 - 400 °C	5.43 µin/in-°F @Temperature 68.0 - 752 °F	
	9.98 µm/m-°C	5.54 µin/in-°F	

Thermal Properties	Metric	English	Comments
	@Temperature 20.0 - 600 °C	@Temperature 68.0 - 1110 °F	
Thermal Conductivity	6.90 W/m-K	47.9 BTU-in/hr-ft²-°F	
Maximum Service Temperature, Air	540 °C	1000 °F	Good creep resistance
Beta Transus	1015 °C	1859 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	5.2 - 5.7 %	5.2 - 5.7 %	
Carbon, C	<= 0.080 %	<= 0.080 %	
Hydrogen, H	<= 0.0060 %	<= 0.0060 %	
Molybdenum, Mo	0.20 - 0.35 %	0.20 - 0.35 %	
Niobium, Nb (Columbium, Cb)	0.70 - 1.3 %	0.70 - 1.3 %	
Nitrogen, N	<= 0.030 %	<= 0.030 %	
Oxygen, O	0.090 - 0.15 %	0.090 - 0.15 %	
Silicon, Si	0.20 - 0.50 %	0.20 - 0.50 %	
Tin, Sn	3.0 - 4.0 %	3.0 - 4.0 %	
Titanium, Ti	84.2 - 88.1 %	84.2 - 88.1 %	Calculated as remainder
Zirconium, Zr	2.5 - 3.5 %	2.5 - 3.5 %	

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