

TIMET TIMETAL® 50A CP Titanium (ASTM Grade 2)

Category : Metal , Nonferrous Metal , Titanium Alloy , Unalloyed/Modified Titanium

Material Notes:

Commercially Pure Titanium. Industry Specifications: USA Aerospace: AMS 4902, 4941. Germany Engineering: 3.7035. Germany Aerospace: 3.7034. France: T-40. UK Aerospace Specifications BS TA. 2, 3, 4, 5. Features: The mechanical properties of CP titanium are influenced by small additions of oxygen and iron. By careful control of these additions, the various grades of commercially pure titanium are produced to give properties suited to different applications. TIMETAL 50A is equivalent to ASTM Grade 2. It is the "workhorse" for industrial applications, having a guaranteed minimum 0.2% yield strength and good ductility and formability. It is used extensively for sea water piping, reactor vessels and heat exchangers throughout the CPI, Petrochemical, Oil and Gas and Naval/Marine markets. This alloy is also ASME approved, has good impact properties at low temperatures, and has excellent resistance to erosion and corrosion by seawater and marine atmospheres. It can be easily welded, machined, cold worked, hot worked, and cast. It is nonmagnetic. Typical heat treatment for this alloy: Anneal at 700°C for 1 hour and air cool. Stress Relieve at 500°C for 30 mins and air cool. Data provided by TIMET.

Order this product through the following link:

http://www.lookpolymers.com/polymer_TIMET-TIMETAL-50A-CP-Titanium-ASTM-Grade-2.php

Physical Properties	Metric	English	Comments
Density	4.51 g/cc	0.163 lb/in ³	Typical

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	485 MPa	70300 psi	Typical
Tensile Strength, Yield	345 MPa @Strain 0.200 %	50000 psi @Strain 0.200 %	Typical
Elongation at Break	28 %	28 %	Typical
Reduction of Area	57 %	57 %	Typical
Modulus of Elasticity	105 - 120 GPa	15200 - 17400 ksi	Typical
Fatigue Strength	154 MPa @# of Cycles 1.00e+7	22300 psi @# of Cycles 1.00e+7	Notched, Kt=3; rotating bend
	232 MPa @# of Cycles 1.00e+7	33600 psi @# of Cycles 1.00e+7	Smooth, Kt=1; rotating bend
Bend Radius, Minimum	2.5 t	2.5 t	Typical; on 0.078 in (2 mm) sheet

Thermal Properties	Metric	English	Comments
CTE, linear	8.60 µm/m-°C @Temperature 20.0 - 100 °C	4.78 µin/in-°F @Temperature 68.0 - 212 °F	

Thermal Properties	Metric	English	Comments
	@Temperature 20.0 - 300 °C	@Temperature 68.0 - 572 °F	
	9.70 μm/m-°C	5.39 μin/in-°F	
	@Temperature 20.0 - 500 °C	@Temperature 68.0 - 932 °F	
Thermal Conductivity	21.79 W/m-K	151.2 BTU-in/hr-ft ² -°F	
Maximum Service Temperature, Air	425 °C	797 °F	Continuous
	540 °C	1000 °F	Intermittent
Beta Transus	915 °C	1680 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.080 %	<= 0.080 %	
Hydrogen, H	<= 0.015 %	<= 0.015 %	
Iron, Fe	<= 0.30 %	<= 0.30 %	
Nitrogen, N	<= 0.030 %	<= 0.030 %	
Oxygen, O	<= 0.25 %	<= 0.25 %	
Titanium, Ti	>= 98.9 %	>= 98.9 %	Calculated as remainder

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000530 ohm-cm	0.0000530 ohm-cm	

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