

TIMET TIMETAL® 35A CP Titanium (ASTM Grade 1)

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

Material Notes:

Commercially Pure Titanium. Industry Specifications: Germany Engineering: 3.7025. Germany Aerospace: 3.7024. France: T-35. UK Aerospace Specification: BS TA. 1. 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 35A contains the lowest oxygen and iron levels, producing the most formable grade of material. It has the highest purity, lowest strength, and best room-temperature ductility and formability of the four ASTM commercially pure grades. 35A should be used where maximum formability is required such as in explosive bonding and plate type heat exchangers. It exhibits excellent corrosion resistance in highly oxidizing to mildly reducing environments, including chlorides. It has good impact properties at low temperatures. In addition, TIMETAL 35A 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-35A-CP-Titanium-ASTM-Grade-1.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	345 MPa	50000 psi	Typical
Tensile Strength, Yield	220 MPa @Strain 0.200 %	31900 psi @Strain 0.200 %	Typical
Elongation at Break	35 %	35 %	Typical
Reduction of Area	70 %	70 %	Typical
Modulus of Elasticity	105 - 120 GPa	15200 - 17400 ksi	Typical
Fatigue Strength	123 MPa @# of Cycles 1.00e+7	17800 psi @# of Cycles 1.00e+7	Notched, Kt=3; rotating bend
	193 MPa @# of Cycles 1.00e+7	28000 psi @# of Cycles 1.00e+7	Smooth, Kt=1; rotating bend
Bend Radius, Minimum	2.0 t @Thickness 2.00 mm	2.0 t @Thickness 0.0787 in	Typical; sheet

Thermal Properties	Metric	English	Comments
CTE, linear	8.60 µm/m-°C	4.78 µin/in-°F	

Thermal Properties	Metric @Temperature 20.0 - 100 °C	English @Temperature 68.0 - 212 °F	Comments
	9.50 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	5.28 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature 20.0 - 300 °C	@Temperature 68.0 - 572 °F	
	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 - 500 °C	@Temperature 68.0 - 932 °F	
Thermal Conductivity	21.97 W/m-K	152.5 BTU-in/hr-ft ² -°F	
Maximum Service Temperature, Air	425 °C	797 °F	Continuous
	540 °C	1000 °F	Intermittent
Beta Transus	890 °C	1630 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.080 %	<= 0.080 %	
Hydrogen, H	<= 0.015 %	<= 0.015 %	
Iron, Fe	<= 0.20 %	<= 0.20 %	
Nitrogen, N	<= 0.030 %	<= 0.030 %	
Oxygen, O	<= 0.18 %	<= 0.18 %	
Titanium, Ti	>= 99.1 %	>= 99.1 %	Calculated as remainder

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000450 ohm-cm	0.0000450 ohm-cm	

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