TIMET 6-4 Titanium Alloy (Ti-6Al-4V-0.1Ru; ASTM Grade 29)

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

Material Notes:

Medium To High Strength General-Purpose Alloy. Property data below are typical of Timet® 6-4 ELI (without Ru). The 0.1 Ru ELI variant is used for enhanced corrosion resistance.Data provided by TIMET.

Order this product through the following link:
http://www.lookpolymers.com/polymer_TIMET-6-4-Titanium-Alloy-Ti-6Al-4V-01Ru-ASTM-Grade-29.php

Physical Properties	Metric	English	Comments
Density	4.42 g/cc	0.160 lb/in³	Typical

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	897 MPa	130000 psi	Typical
Tensile Strength, Yield	828 MPa @Strain 0.200 %	120000 psi @Strain 0.200 %	Typical
Elongation at Break	16 %	16 %	Typical
Modulus of Elasticity	105 - 120 GPa	15200 - 17400 ksi	Typical
Poissons Ratio	0.31	0.31	
Shear Modulus	41.0 - 45.0 GPa	5950 - 6530 ksi	
Bend Radius, Minimum	5.0 t	5.0 t	Typical; on 0.078 in (2 mm) sheet

Thermal Properties	Metric	English	Comments
CTE, linear	9.00 µm/m-°C @Temperature 0.000 - 100 °C	5.00 µin/in-°F @Temperature 32.0 - 212 °F	
	9.40 µm/m-°C @Temperature 20.0 - 425 °C	5.22 µin/in-°F @Temperature 68.0 - 797 °F	
	9.70 µm/m-°C @Temperature 20.0 - 650 °C	5.39 µin/in-°F @Temperature 68.0 - 1200 °F	
Specific Heat Capacity	0.586 J/g-°C	0.140 BTU/lb-°F	
Melting Point	1674 °C	3045 °F	
Liquidus	>= 1636 °C	>= 2977 °F	

Thermal Properties	Metric	English	Comments
Maximum Service Temperature, Air	350 °C	662 °F	Excellent mechanical properties retained
Beta Transus	982 °C	1800 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	5.5 - 6.5 %	5.5 - 6.5 %	
Carbon, C	<= 0.080 %	<= 0.080 %	
Hydrogen, H	<= 0.015 %	<= 0.015 %	
Iron, Fe	<= 0.25 %	<= 0.25 %	
Nitrogen, N	<= 0.030 %	<= 0.030 %	
Oxygen, O	<= 0.13 %	<= 0.13 %	
Ruthenium, Ru	0.080 - 0.14 %	0.080 - 0.14 %	
Titanium, Ti	88 - 90.9 %	88 - 90.9 %	Calculated as remainder
Vanadium, V	3.5 - 4.5 %	3.5 - 4.5 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000168 ohm-cm	0.000168 ohm-cm	
Magnetic Permeability	1.00005	1.00005	at 20 oersteds

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