



ASM Aerospace Specification Metals Inc.



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Titanium Ti-6Al-2Sn-4Zr-2Mo (Ti-6-2-4-2), Duplex Annealed

Subcategory: Alpha/Near Alpha Titanium Alloy; Metal; Nonferrous Metal; Titanium Alloy

Key Words: Ti6Al2Sn4Zr2Mo, Ti-6242; Ti-6-2-4-2; UNS R54620

Component Wt. %

Al	6
Mo	2
Sn	2
Ti	86
Zr	4

Material Notes:

Alpha Alloy. Silicon is often added to improve creep resistance (See Ti-6242S).

Applications: High-temp jet engines. Blades, discs, spacers, seals. High performance automotive valves.

Physical Properties	Metric	English	Comments
Density	<u>4.54 g/cc</u>	0.164 lb/in ³	

Mechanical Properties

Hardness, Brinell	304	304	Estimated from Rockwell C.
Hardness, Knoop	330	330	Estimated from Rockwell C.
Hardness, Rockwell C	32	32	
Hardness, Vickers	318	318	Estimated from Rockwell C.
Tensile Strength, Ultimate	<u>940 MPa</u>	136000 psi	
Tensile Strength, Yield	<u>860 MPa</u>	125000 psi	
Elongation at Break	<u>15 %</u>	15 %	
Modulus of Elasticity	<u>113.8 GPa</u>	16500 ksi	
Compressive Yield Strength	<u>1070 MPa</u>	155000 psi	
Notched Tensile Strength	<u>1170 MPa</u>	170000 psi	K _t (stress concentration factor) = 3.0

Ultimate Bearing Strength	2000 MPa	290000 psi	e/D = 2
Bearing Yield Strength	1620 MPa	235000 psi	e/D = 2
Poisson's Ratio	0.32	0.32	
Charpy Impact	20 J	14.8 ft-lb	V-notch
Fatigue Strength	280 MPa	40600 psi	at 1E+7 cycles. K _t (stress concentration factor) = 3.0
Fatigue Strength	480 MPa	69600 psi	1E+7 cycles, Unnotched
Shear Modulus	43.1 GPa	6250 ksi	Calculated
Shear Strength	660 MPa	95700 psi	Ultimate shear strength

Electrical Properties

Electrical Resistivity	0.00019 ohm-cm	0.00019 ohm-cm
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Thermal Properties

CTE, linear 20°C	7.7 μm/m-°C	4.28 μin/in-°F	20-100°C
CTE, linear 250°C	8.1 μm/m-°C	4.5 μin/in-°F	Average over the range 20-315°C
CTE, linear 500°C	8.1 μm/m-°C	4.5 μin/in-°F	Average over the range 20-540°C
Specific Heat Capacity	0.46 J/g-°C	0.11 BTU/lb-°F	
Thermal Conductivity	7.1 W/m-K	49.3 BTU-in/hr-ft ² -°F	
Melting Point	Max 1700 °C	Max 3090 °F	Liquidus; Estimated from similar materials
Liquidus	1700 °C	3090 °F	Estimated from similar materials
Beta Transus	990 °C	1810 °F	

References for this datasheet.

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error.