

TITANIUM 6Al-2Sn-4Zr-6Mo
Ti 6246
(UNS R56260)

Chemical Composition											
O	N	C	H	Fe	V	Cr	Al	Sn	Zr	Mo	Residuals
0.15	0.04	0.04	0.125	0.15	-	-	5.5-6.5	1.75-2.25	3.5-4.5	5.5-6.5	0.4

(maximum values unless range is shown)

Titanium 6246 is an alpha-beta alloy that can be heat treated to higher strengths in greater section sizes than Titanium 6Al-4V (Titanium Grade 5) with excellent corrosion resistance. It is frequently used in applications where high strength and light weight are needed along with good corrosion resistance.

As in other titanium alloys, Ti 6246 has high level of corrosion resistance based on the existence of a consistent and continuous oxide layer which is formed spontaneously upon exposure to oxygen. In addition, due to its approximate 6% molybdenum content, Ti 6246 has excellent resistance to corrosion in reducing environments such as Hydrogen Sulfide (H₂S). It has excellent resistance to corrosion in seawater making it a good choice for use in offshore and subsea oil and gas operations where seawater corrosion and weight are concerns.

Titanium 6246, like other titanium alloys, has a modulus of elasticity of 107 Gpa (15.5 x 10³ ksi), roughly half that of carbon steels.

Advantages of Titanium 6246:

- Conforms to NACE MR 0175/ISO 15156
- Superior corrosion resistance in oilfield environments
- Low density/ very high strength-to-weight ratio
- Low modulus of elasticity
- Low thermal expansion
- Non-magnetic
- Good fatigue resistance
- Can be heat treated to higher strength levels than Ti 6Al-4V (minimum 1040 MPa / 150 ksi)
- Good high temperature mechanical properties



Applications

Titanium 6246 is used in applications where very high strength, light weight and corrosion resistance are important. Potential applications include shafts and housings for oil and gas drilling tools, subsea wellhead and riser components, well sampling equipment, pressure housings, and completion equipment. Ti 6246 has also been used in high-performance motorsport applications to reduce weight/size of components.

Machinability

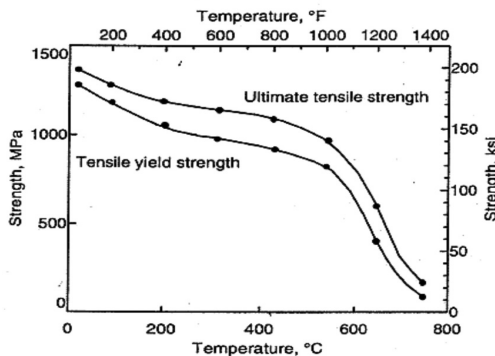
Machining capabilities are similar to other high strength titanium alloys; however, slower speeds are generally advised.

Typical Mechanical Properties Solution Treated & Aged Condition		
	MPa	ksi
Yield Strength (0.2%)	930-1137	135-165
Tensile Strength	1000-1206	145-175
Elongation (%)	6-20	
Reduction in Area (%)	10-35	
Hardness	45Rc Max*	

* for NACE MR0175/ISO 15156

Note: Variations in mechanical properties are dependent on size/condition/heat treatment

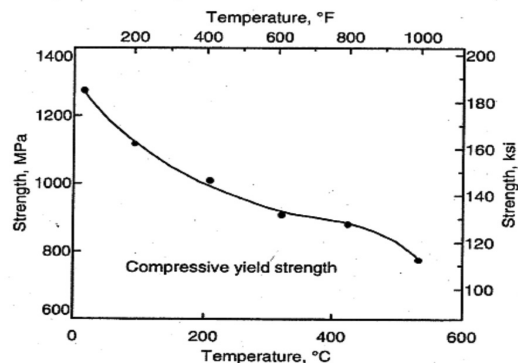
Ti-6246: Tensile strength of TA sheet



Triplex annealed sheet, 855°C (1575°F),
15 min, FAC; 730°C (1350°F) 15 min, AC;
595°C (1100°F), 2 hr, AC

Source: Aerospace Structural Metals Handbook

Ti-6246: Compressive strength vs temperature



Triplex annealed sheet.

Source: Aerospace Structural Metals Handbook

Titanium Engineers, with headquarters in Sugar Land, Texas, has over 25 years of experience in processing titanium and manufacturing titanium components, including high strength Titanium 6246 alloy. Unlike many other titanium processors, we have the knowledge and experience to process and machine titanium alloys correctly in order to ensure the mechanical properties and dimensional stability required by the customer are met.

Titanium Engineers have highly experienced engineers, metallurgists, and materials experts with decades of design experience. Titanium Engineers carries large inventories of Titanium 6246 alloy in both Europe and North America and will work with you to obtain the Titanium bar or machined components you need in the shortest possible time.

Please contact a member of our team for more information:

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