

# Ti 6Al-4V ELI

Ti 6Al-4V ELI is the extra-low interstitial version of Ti 6Al-4V, with superior damage tolerance and better mechanical properties at cryogenic temperatures.



Also known as ASTM B348 Grade 23, high-purity Ti 6Al-4V ELI is engineered by the **careful selection of ingot raw materials with lower specified limits on iron and the interstitial elements carbon and oxygen**. As a result, the alloy has greater fracture toughness and a lower fatigue crack growth rate. Ti 6Al-4V ELI is the **material of choice for many dental and medical implants, devices, and tools** due to its excellent biocompatibility, good fatigue strength, and low modulus.

**Similar alloys:** Ti 6Al-4V, Ti CP Grades 1–4

## KEY FEATURES OF TI 6AL-4V ELI

- **Corrosion resistance:** Ti 6Al-4V ELI spontaneously and immediately forms a stable, continuous, tightly adherent oxide film upon exposure to oxygen in air or water. This accounts for its excellent corrosion resistance in a variety of media.
- **Biocompatibility:** Part of the reason for Ti 6Al-4V ELI's good biocompatibility is its corrosion resistance. Body fluids are basically chloride brines, conditions under which Ti 6Al-4V ELI is highly immune to corrosion.
- **Fracture toughness:** The fracture toughness of Ti 6Al-4V ELI lies between that of aluminum alloys and steels and is superior to that of standard grade Ti 6Al-4V.
- **Long-lasting performance:** Ti 6Al-4V ELI exhibits modulus of elasticity close to human bone and therefore does not induce stress shielding. The alloy can also be treated with surface coatings to accelerate bone fracture healing.
- **Customization and advanced technologies:** Titanium is the most widely used material in medical device additive manufacturing. Ti 6Al-4V ELI is available as a premium AM powder, in addition to many other precision-engineered product forms.



© 2025 CRS Holdings LLC. All rights reserved. v 2-25