

The Advantages of Titanium Alloy Screws

What are the advantages of [titanium alloy](#) screws compared to other metal materials?

1. Titanium alloy screws (Most of titanium alloy screws are [titanium Gr.5, Ti-6Al4v](#)) have high specific strength, tensile strength up to 100-140kgf/mm², and [density](#) is only 60% of steel.
2. The medium temperature strength is good, the working temperature is several hundred degrees higher than aluminum alloy. Titanium alloy screws can maintain the required strength at moderate temperature, can work for a long time at 450 ~ 500 °C.
3. Good [corrosion resistance](#), titanium alloy screws will form a uniform and dense oxide film on the surface of the atmosphere. It has the ability to resist a variety of media erosion. It has [good corrosion resistance in oxidizing](#) and neutral media and excellent corrosion resistance in seawater, [wet chlorine and chloride solutions](#). However, in a reducing medium such as [hydrochloric acid](#), the corrosion resistance of titanium is poor.
4. Titanium alloy screw has good low-temperature performance, and titanium alloy with extremely low gap element can maintain a certain plasticity at -253 °C.
5. Titanium alloy screws has low elastic modulus, [low thermal conductivity](#), no ferromagnetism, high hardness, poor stamping property and [good thermoplasticity](#).

Titanium alloy screws can be obtained by adjusting the [heat treatment](#) process to obtain different phase compositions and microstructures. It is generally believed that the fine equiaxed structure which has good plasticity, thermal stability and fatigue strength. The needle-like structure has high durability, creep strength and fracture toughness. The equiaxed and needle-like mixed structure has better comprehensive performance.

For more information please visit www.ti-screws.com

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