

A high-frequency, piezoelectric thin-film sensor was successfully deposited on a nickel-based superalloy bolt by radio frequency magnetron sputtering to develop a smart, nickel-based superalloy bolt. Ultrasonic response characterization, high accuracy, and repeatability of ultrasonic measurement of axial preload in nickel-based superalloy smart bolts are reported ...

Titanium alloy, flat countersunk head, right hand thread direction, NAS8803 series bolt ... \$3.60 Each, titanium alloy bolt. NAS8803A5. 5305-01-521-2057 Close Tolerance Bolt. NAS8803A4. 5305-01-338-7310 Close Tolerance Bolt. NAS8803A2. Titanium alloy flat countersunk head. Product Image Gallery

When bolted joints are subjected to thermal load, variations of the bolt clamping force are of great concern from the view point of joint safety. It is considered that titanium and titanium alloy bolts have high possibility for clamping machines and structures subjected to thermal load. Its specific characteristic of low thermal expansion expectantly ...

Titanium is a chemical element with atomic number 22, occupying the fourth group, fourth period of the periodic table of elements. It is classified as a transition metal, with a density of 4.51 g/cm³ and a Young's modulus of 120 GPa. Titanium exhibits two polymorphs (see Sect. 4.2): a titanium (hcp structure), stable up to 882 °C, a temperature named α -transus.

This paper reports the conceptualization, fabrication, and characterization of proof-of-concept solid-state nickel titanium thermal energy storage modules that store heat ...

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HTS Codes used for imports of titanium bolts. HTS Code Description No of Shipments; 2823-282300-10: 8108 ... Portable electric lamps designed to function by their own source of energy (for example, dry batteries, storage batteries, magnetos), other than lighting equipment of heading 8512; parts thereof;

Some specific hydrogen induced damage to metals and alloys are hydrogen induced blistering, hydrogen embrittlement (HE), cracking due to hydride formation, hydrogen attack and cracking due to precipitation of internal hydrogen [1]. Hydrogen in high strength material such as steels has a most common effect known as hydrogen embrittlement [2], [3], [4].

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Energy storage titanium alloy bolts

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A heat treatment at 800°C for 180 min, followed by 16% tensile plastic deformation, successfully increased the energy dissipation of the alloy, with an increase up to 76% in quasi-static ...

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Titanium fasteners are resistant to both rapid moving and stagnant seawater up to a mile deep - even at temperatures of up to 500°F. Like seawater, titanium screws are also almost inert to all chloride and chlorine solutions. This is due to titanium's ability to rapidly regenerate its protective passive layer in the presence of oxygen.

This work investigates the effects of a supertransus annealing treatment, followed by plastic deformation, on the damping properties of a Ti-11.5Mo-6Zr-4.5Sn alloy. In our study, no evidence of a α' -phase was found. A heat treatment at 800°C for 180 min, followed by 16% tensile plastic deformation, successfully increased the energy dissipation of the alloy, with an increase ...

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In order to obtain insight into defect complexes, we have calculated the formation energy of a V Ti -interstitial Ti pair as a function of the separation of the individual ...

Solid-state hydrogen storage: Solid-state hydrogen mainly comprises of two categories i.e. adsorption based storage (carbon nanotubes, metal organic framework, etc.) and absorption storage (metal hydride, complex hydrides, etc.). In case of adsorption, hydrogen is stored in the microscopic pores and within the tube structures, but for absorption, it chemically ...

Hydrogen has even been proposed as a temporary alloying element to increase the formability of Ti alloys [77, 78]. The Ti alloy is held at a relatively high temperature in hydrogen. The absorbed hydrogen induces a phase transformation from α -Ti (hexagonal close-packed, HCP) to more ductile β -Ti (body-center cubic, BCC).

Superelastic shape memory alloy (SMA) wire is a memorable deformation material with large resilience and high energy density. In this paper, a revolutionary and yet explainable property of the SMA is investigated and confirmed: superelastic SMA energy storage and release can be quantitatively measured using electrical resistance.

It will discuss several types of titanium alloys and explore the unique characteristics of these alloys, such as high strength-to-weight ratio, corrosion resistance, and ...

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The use of alloys based on the TiFe intermetallic compound would reduce the costs of metal hydride hydrogen storage by more than five times. This circumstance is the reason for the growing interest of specialists in the field of hydrogen energy technologies in hydrogen-storage materials based on titanium-iron alloys.

Users forced to switch from titanium to heavier steel or CRES alloy parts because of fastener size design

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Hydrogen storage is one of the critical barriers to the hydrogen-based clean energy supply chain. TiFe alloy is a prime candidate material for stationary hydrogen storage, which can play a critical role in the deployment of variable renewable energies. However, the understanding of the hydrogen storage properties of TiFe alloy and the development of ...

The growing use of titanium alloys has led to the gradual replacement of traditional processing methods by laser cutting technology, making it the preferred method for processing titanium alloy plates due to its high efficiency, precision, and adaptability. In this review, the characteristics of laser cutting technology and its application in titanium alloy plate ...

Furthermore, a design based selection process of titanium alloy bolts in the structural applications was proposed, in which the ultimate strength, ductility performance and corrosion resistance ...

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The mechanical properties of ternary FeTiAl alloys are not only influenced by the amount of Al or Ti contained in the alloy, but also by the microstructure formed in iron-rich or titanium-rich intermetallic alloys. The enthalpy of formation for this last Fe-Ti-Al alloy is positive, proving that the alloy does not exist in the experience.

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