

Does aluminum alloy need aging heat treatment for solar photovoltaic brackets?

The commonly used aluminum alloy series for solar photovoltaic brackets need to undergo aging heat treatment to achieve the required strength. China Aluminum strictly controls the solution treatment and aging heat treatment process to ensure the required strength of the aluminum alloy brackets.

Is aluminum a good material for solar panels?

With its advantages of light weight, high strength, corrosion resistance and durability, aluminum is widely used in building solar panel frames and photovoltaic supports. Research shows that aluminum is the most widely used material in solar photovoltaic (PV) applications, accounting for more than 85% of most solar PV modules.

What are the main alloying elements of aluminium bracket?

The main alloying elements are copper, magnesium, zinc, silicon, manganese, and lithium. The investigated aluminium bracket is made of aluminium alloy EN AW-6060/EN AW-Al MgSi (according to standard) in temper T66 (according to standard).

What is the aluminium bracket made of?

The aluminium bracket is made of EN AW-6060 T66 aluminium alloy. Table 2 includes mechanical properties in the case when thickness is lower than 3mm.

Can aluminium bracket design be improperly conducted?

Aluminium bracket design is a complex process; a high probability exists that it can be conducted improperly. Preliminary research on the investigated aluminium brackets (see Fig. 2) reveals that both the load-bearing capacity and the stiffness are insufficient for carrying the anticipated design loads.

How many cantilever plates are in an aluminium bracket?

The investigated aluminium bracket (see Fig. 2) consists of an end plate of variable thickness (8 mm and 5 mm in the middle) and two 6mm thick cantilever plates. The problem concerns an end plate 180 mm wide and 140 mm high with two cantilever plates 145 mm wide and 140 mm high.

Density of Aluminium Alloy vs Magnesium Alloy. Density of typical aluminium alloy is 2.7 g/cm³ (6061 alloy). Density of typical magnesium alloy is 1.8 g/cm³ (Elektron 21). Density is defined as the mass per unit volume. It is an intensive ...

The material's corrosion resistance extends the life of the bracket and improves the overall durability of the solar panel system. Additionally, zinc-aluminum-magnesium alloys are highly resistant to sea salt and other environmental ...

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