Mechanical structure of photovoltaic support

What is a PV support structure?

Support structures are the foundation of PV modulesand directly affect the operational safety and construction investment of PV power plants. A good PV support structure can significantly reduce construction and maintenance costs. In addition,PV modules are susceptible to turbulence and wind gusts,so wind load is the control load of PV modules.

What is flexible support photovoltaic module system?

Flexible support photovoltaic module system: (a) the single-layer cable-supported photovoltaic module system,(b) the double-layer cable-supported photovoltaic module system. Recently,the author proposed the cable-truss support photovoltaic module structure system with excellent wind resistance and economic performance.

What are the loads acting on photovoltaic supports?

Based on design information and on-site observations,the loads acting on photovoltaic supports primarily include the weight of the photovoltaic panels,the wind load,the snow load,and the construction load. Additionally,the Chinese code NB/T 10115-2018 mandates the consideration of the longitudinal wind load on photovoltaic supports.

Do photovoltaic supports have a design load and joint connection?

Based on a typical photovoltaic support failure case, this study involved detailed research on the design load and joint connection measures of photovoltaic supports. First, the general design software SAP2000 (V22.0.0) was utilized to compare the loads in photovoltaic support structure design among Chinese, American, and European codes.

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The influence of different joint connection types on the mechanical performance of the photovoltaic support system was analyzed accordingly, and the effectiveness of the new joint ...

Wind-induced response and critical wind velocity of a 33-m-span flexible PV modules support structure was investigated by using wind tunnel tests based on elastic test model, and the ...

In order to study the mechanica properties of the fixed photovoltaic bracket and its failure under wind load, the full-scale photovoltaic bracket specimen was designed and the destructive test ...

Abstract In order to respond to the national goal of "carbon neutralization" and make more rational and effective use of photovoltaic resources, combined with the actual photovoltaic substation ...

The flexible support photovoltaic module structure system has advantages such as large span, fast construction

speed, and suitability for complex environments. However, this kind of system ...

Additionally, the ABAQUS numerical simulation was used to investigate the mechanical characteristics of photovoltaic support joint connections and analyze the causes of structural ...

In the photovoltaic (PV) solar power plant projects, PV solar panel (SP) support structure is one of the main elements and limited numerical studies exist on PVSP ground mounting steel frames ...

Then, the advantages of the three-dimensional cable-truss flexible photovoltaic support system are illustrated from the aspects of natural frequency, mode, and mechanical properties ...

Abstract-- Solar panel support structure lays the foundation for mounting solar PV cells. The design and material of panel structure is crucial to sustain wind load and self-load. The current ...

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