

What factors affect the bearing capacity of new cable-supported photovoltaic modules?

The pretension and diameter of the cables are the most important factors of the ultimate bearing capacity of the new cable-supported PV system, while the tilt angle and row spacing have little effect on the mechanical characteristics of the new type of cable-supported photovoltaic modules.

What is cable-supported photovoltaic (PV)?

Cable-supported photovoltaic (PV) modules have been proposed to replace traditional beam-supported PV modules. The new system uses suspension cables to bear the loads of the PV modules and therefore has the characteristics of a long span, light weight, strong load capacity, and adaptability to complex terrains.

What is a supporting cable structure for PV modules?

Czaloun (2018) proposed a supporting cable structure for PV modules, which reduces the foundation to only four columns and four fundamentals. These systems have the advantages of light weight, strong bearing capacity, large span, low cost, less steel consumption and applicability to complex terrain.

What is a PV support structure?

Support structures are the foundation of PV modules and 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 are the characteristics of a cable-supported photovoltaic system?

Long span, light weight, strong load capacity, and adaptability to complex terrains. The nonlinear stiffness of the new cable-supported photovoltaic system is revealed. The failure mode of the new structure is discussed in detail. Dynamic characteristics and bearing capacity of the new structure are investigated.

What are the different types of PV support systems?

At present, there are three main types of PV support systems: fixed mounted PV, flexible mounted PV, and float-over mounted PV systems. Fixed mounted PV systems are the traditional and most widely used PV system. They are usually mounted on the ground and building roofs.

2 ???· ???; ???, ???, ???, ???, ??? Abstract: In order to study the mechanical properties of the fixed photovoltaic bracket and its failure under wind load, the full ...

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The results show that: (1) according to the general requirements of 4 rows and 5 columns fixed photovoltaic support, the typical permanent load of the PV support is 4679.4 N, ...

Older bearing designs may be limited to 45°; east and west, with newer bearings enabling travel from 60°; east to 60°; west. Vertical balance A bearing's design establishes both ...

Ground photovoltaic support: The concrete strip is used as the base form, and the support is installed on the ground by means of foundation, direct burial, etc. (1) The structure is simplified ...

The solar photovoltaic bracket is a kind of support structure. In order to get the maximum power output of the whole photovoltaic power generation system, we usually need to fix and place the ...

For an offshore photovoltaic helical pile foundation, significant horizontal cyclic loading is imposed by wind and waves. To study a fixed offshore PV helical pile's horizontal ...



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