

Design drawing of Japanese photovoltaic support beam

Which finite element analysis software is used in a Japanese photovoltaic power?

For the the actual demand in a Japanese photovoltaic power,SAP2000finite element analysis software is used in this paper,based on Japanese Industrial Standard (JIS C 8955-2011),describing the system of fixed photovoltaic support structure design and calculation method and process.

Can SAP2000 be used to design a fixed photovoltaic support?

Taking an engineering project in Japan as an example,the SAP2000 software was used in this paper to carry out the analysis and research on the bearing capacity of the fixed photovoltaic support under various load conditions,so as to provide a reference method for the structural designof the fixed photovoltaic support.

Does a tracking photovoltaic support system have finite element analysis?

In terms of finite element analysis,Wittwer et al.,obtained modal parameters of the tracking photovoltaic support system with finite element analysis,and the results are similar to those of this study,indicating that the natural frequencies of the structure remain largely unchanged.

Can a solar array support structure withstand a wind load?

Even fixed solar array support structures have sofisticated design,that needs to be analyzed and often improvedin order to withstand the wind load. The same applies of course to adjustable designs to an even greater extend. The analysis has to be carried out for many wind directions.

What are the requirements for photovoltaic support design?

According to the design requirements of power station,in the photovoltaic support design process,the array structure strength should meet the environmental requirements,such as the wind load 1.05 kN/m²,the snow load 0.89 kN/m²,and the basic parameters were shown in table 1.

What are the dynamic characteristics of photovoltaic support systems?

Key findings are as follows. Dynamic characteristics of tracking photovoltaic support systems obtained through field modal testing at various inclinations, revealing three torsional modes within the 2.9-5.0 Hz frequency range, accompanied by relatively small modal damping ratios ranging from 1.07 % to 2.99 %.

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