Solar PV Mounting Systems Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Product (Rooftop and Ground Mounted), By Technology (Fixed and Tracking), By Component (PV Modules [Panels], Inverters, Racking, Batteries, Others), By End-User (Residential, Commercial, and Industrial), By Region, By Competition, 2018-2028

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Report description:

Global Solar PV Mounting Systems Market has valued at USD 12.08 billion in 2022 and is anticipated to project robust growth in the forecast period with a CAGR of 8.19% through 2028.

The Solar PV Mounting Systems market refers to the specialized segment of the renewable energy industry that focuses on the design, production, and installation of structures and components necessary for securely mounting photovoltaic (PV) solar panels. These mounting systems are essential components of solar energy infrastructure, serving as the structural framework that supports and positions solar panels to harness sunlight and convert it into electricity. The primary objective of Solar PV Mounting Systems is to ensure the optimal orientation and inclination of solar panels to capture sunlight efficiently, maximizing energy generation. These systems are engineered to withstand various environmental conditions, including wind, snow, and seismic activity, ensuring the long-term durability and safety of solar PV installations.

The Solar PV Mounting Systems market encompasses a wide range of mounting solutions tailored to diverse applications, including rooftop installations on residential, commercial, and industrial buildings, as well as ground-mounted systems, solar carports, and floating solar platforms on water bodies. As the solar energy sector continues to grow, the demand for innovative and adaptable mounting systems becomes increasingly significant, making this market a vital component of the broader renewable energy landscape.

Key Market Drivers

Growing Solar Energy Capacity

One of the primary drivers fueling the global Solar PV (photovoltaic) Mounting Systems market is the continuous growth in solar energy capacity worldwide. Solar PV systems have become increasingly popular for generating electricity from sunlight, thanks to their environmental benefits and decreasing costs. This surge in demand for solar power has led to a corresponding increase in the need for efficient and durable mounting systems.

Countries across the globe are setting ambitious renewable energy targets, with solar power playing a significant role in their plans. These targets are often accompanied by incentives, subsidies, and favorable policies to promote solar energy adoption. As a result, both residential and utility-scale solar installations are on the rise, propelling the demand for solar PV mounting systems.

Declining Solar PV Costs

The declining cost of solar PV components, particularly solar panels, has been a major driver of the Solar PV Mounting Systems market. Over the past decade, the price of solar panels has steadily decreased due to technological advancements, increased production capacity, and economies of scale. This cost reduction has made solar energy more accessible and financially attractive to a broader range of consumers and businesses.

As the cost of solar panels decreases, there is a greater emphasis on the overall system cost, including the mounting and installation. Consequently, solar PV mounting system manufacturers are under pressure to offer cost-effective solutions that complement the affordability of solar panels while maintaining high-quality standards.

Environmental Concerns and Sustainability

Growing environmental concerns and a heightened focus on sustainability have driven the adoption of solar PV systems worldwide. Solar power is recognized as a clean and renewable energy source that significantly reduces greenhouse gas emissions compared to fossil fuels. As individuals, businesses, and governments seek to reduce their carbon footprints and combat climate change, solar PV installations have become a preferred choice for generating electricity.

Mounting systems are a crucial component of solar PV installations, and their design and materials have a direct impact on the overall sustainability of the system. Manufacturers are increasingly using recycled materials and designing mounting systems for easy end-of-life recycling, aligning with the broader sustainability goals of the green energy industry.

Energy Independence and Security

Energy independence and security are driving factors for governments and businesses seeking to diversify their energy sources and reduce dependence on fossil fuels. Solar PV systems offer a reliable and decentralized energy source, making them an attractive option for achieving energy security.

Mounting systems play a vital role in ensuring the stability and longevity of solar PV installations, making them critical components in the pursuit of energy independence. As more regions and countries look to harness their solar potential, the demand for high-quality and durable mounting systems is expected to rise.

Technological Advancements and Innovation

Innovation and technological advancements in solar PV mounting systems have spurred market growth. Manufacturers are continuously developing new and improved mounting solutions that enhance installation efficiency, increase system reliability, and reduce maintenance requirements.

Advanced tracking systems, innovative rooftop mounting designs, and integrated solutions that incorporate solar panels with mounting systems have all contributed to the market's expansion. These innovations help maximize energy capture and improve the overall performance of solar PV installations.

Supportive Government Policies and Incentives

Government policies and incentives at the local, national, and regional levels have a significant influence on the Solar PV Mounting Systems market. Policies such as feed-in tariffs, tax credits, rebates, and renewable energy mandates encourage the adoption of solar PV systems, consequently driving demand for mounting systems.

Additionally, regulations and building codes often stipulate safety and durability standards for mounting systems, ensuring their compliance with industry best practices. Governments may also introduce measures to promote the use of locally manufactured mounting systems, boosting domestic manufacturing and job creation.

In conclusion, the global Solar PV Mounting Systems market is experiencing robust growth due to factors such as the increasing capacity of solar energy, declining PV costs, environmental concerns, energy security, technological innovations, and supportive government policies. These drivers collectively contribute to the expansion of the market and the widespread adoption of solar PV

systems.

Government Policies are Likely to Propel the Market

Renewable Energy Targets and Incentives

One of the most influential government policies driving the global Solar PV Mounting Systems market is the establishment of renewable energy targets and incentives. Many governments around the world have set ambitious targets for increasing the share of renewable energy in their overall energy mix. These targets are often accompanied by a range of incentives designed to stimulate solar PV installations, including residential, commercial, and utility-scale projects.

Renewable energy targets provide a clear and long-term vision for the growth of the solar PV sector, instilling confidence in investors, developers, and manufacturers. To encourage solar PV adoption, governments offer incentives such as feed-in tariffs, tax credits, rebates, and performance-based incentives. These financial incentives make solar PV installations more economically viable, ultimately boosting the demand for high-quality mounting systems.

In addition to financial incentives, governments may also streamline permitting processes and reduce regulatory barriers to make it easier for individuals and businesses to install solar PV systems with compatible mounting solutions.

Net Metering and Grid Integration

Net metering policies have a significant impact on the Solar PV Mounting Systems market. Net metering allows solar PV system owners to feed excess electricity they generate back into the grid and receive credits for it. This policy encourages individuals and businesses to invest in larger solar PV systems, which, in turn, necessitates robust and efficient mounting systems to support larger arrays.

Furthermore, grid integration policies and regulations play a crucial role in ensuring the seamless integration of solar PV systems into the existing electricity grid. Governments may implement rules and standards that require grid operators to accommodate distributed energy generation, including solar PV. This encourages the deployment of solar PV systems, driving the demand for compatible mounting solutions that meet safety and reliability standards.

Building Codes and Standards

Building codes and standards established by governments are instrumental in shaping the Solar PV Mounting Systems market. These regulations are designed to ensure the structural integrity, safety, and durability of solar PV installations, including their mounting systems. Building codes often specify load-bearing requirements, wind resistance, and other factors that influence the design and installation of mounting systems.

By setting clear and stringent standards, governments help maintain the quality and reliability of mounting systems while safeguarding the investments of solar PV system owners. Compliance with building codes is typically a prerequisite for obtaining permits and incentives, creating a strong incentive for manufacturers and installers to produce and use compliant mounting systems.

Research and Development Funding

Government investment in research and development (R&D) is a significant driver of innovation in the Solar PV Mounting Systems market. Funding for R&D initiatives supports the development of advanced mounting solutions that enhance installation efficiency, reduce costs, and improve overall system performance.

Government agencies often collaborate with research institutions, universities, and industry partners to advance mounting system technologies. These investments contribute to the evolution of mounting systems, making them more adaptable to different environments, materials, and installation methods.

R&D funding also supports the development of integrated solutions that combine solar panels with mounting systems, simplifying installation processes and reducing overall system costs. This innovation, driven by government support, helps maintain the competitiveness of the solar PV market.

Trade and Tariff Policies

Trade and tariff policies implemented by governments can have a substantial impact on the global Solar PV Mounting Systems market. Import tariffs, duties, and trade restrictions on mounting system components can influence the cost and availability of these products. Governments may impose protective measures to support domestic manufacturing and job creation.

These trade policies can create challenges for solar PV system developers and installers who rely on cost-effective imported mounting systems. Conversely, they can also stimulate domestic production of mounting systems, providing opportunities for

local manufacturers to supply the growing solar PV market.
Balancing trade and tariff policies to promote industry growth while ensuring fair competition and access to affordable mounting solutions is a complex challenge for governments around the world.
Environmental and Sustainability Regulations
Government policies related to environmental and sustainability regulations are increasingly important in the Solar PV Mounting Systems market. As sustainability becomes a key consideration in solar PV projects, governments are taking steps to ensure that mounting systems meet specific environmental criteria.
These policies may promote the use of materials with lower environmental impact, encourage the recycling or responsible disposal of mounting system components, and set guidelines for sustainable manufacturing practices. Manufacturers that align their products with these regulations and sustainability goals can gain a competitive advantage in the market.
In conclusion, government policies significantly shape the Solar PV Mounting Systems market by influencing demand through targets and incentives, promoting safety and reliability through building codes and standards, driving innovation through research and development funding, affecting costs and availability through trade and tariff policies, and fostering sustainability through environmental regulations. These policies collectively play a pivotal role in shaping the growth and development of the solar PV mounting systems sector on a global scale.
Key Market Challenges
Technological Compatibility and Adaptability
One of the key challenges facing the global Solar PV Mounting Systems market is the need for mounting systems to be technologically compatible and adaptable to various solar PV technologies and installation scenarios. As the solar industry evolves, new types of solar panels, inverters, and other components emerge, each with unique characteristics and requirements. Solar PV mounting systems must be designed to accommodate different panel sizes, weights, and shapes while providing the necessary structural integrity and support. Additionally, they must be adaptable to various installation scenarios, including rooftop installations, ground-mounted systems, tracking systems, and floating solar platforms.
Technological advancements in solar PV, such as bifacial panels, thin-film technologies, and solar trackers, challenge mounting system manufacturers to keep pace and develop solutions that can effectively integrate these innovations. Failure to address these compatibility and adaptability challenges can lead to increased complexity in system design and installation, potentially impacting the efficiency and reliability of solar PV installations.
To overcome this challenge, mounting system manufacturers need to invest in research and development to create versatile and customizable products that can accommodate evolving solar technologies and installation methods. Collaboration within the solar industry to establish standardized interfaces and compatibility guidelines can also help address these challenges.
Economic Pressures and Cost Competitiveness
Another significant challenge in the global Solar PV Mounting Systems market is the relentless pressure to reduce costs while maintaining quality and safety standards. The solar industry is highly competitive, and the cost of solar PV components, including mounting systems, has a direct impact on the overall affordability and attractiveness of solar installations.
Manufacturers and installers face the challenge of delivering cost-effective mounting solutions without compromising performance or durability. Reducing the cost of mounting systems involves optimizing materials, manufacturing processes, transportation logistics, and installation methods. Achieving this balance can be particularly challenging in regions where labor costs, raw material prices, or regulatory requirements are high.
Furthermore, the pressure to lower costs extends to installation and maintenance. Simplifying installation processes and minimizing maintenance requirements are crucial for cost competitiveness. Efficient installation methods can reduce labor costs and project timelines, making solar PV installations more financially appealing to consumers and businesses.
Government policies and incentives, such as feed-in tariffs or tax credits, can help mitigate this challenge by supporting the adoption of solar PV systems and promoting economies of scale. These policies can create demand for high-quality mounting systems and encourage manufacturers to invest in cost-saving innovations.
In conclusion, the global Solar PV Mounting Systems market faces challenges related to technological compatibility and adaptability to evolving solar PV technologies and installation scenarios. Additionally, economic pressures and the need for cost competitiveness are driving mounting system manufacturers to find innovative ways to reduce costs without compromising

quality and safety standards. Overcoming these challenges will require ongoing research and development efforts, industry collaboration, and the support of favorable government policies.

Segmental Insights

Rooftop Insights

The Rooftop segment had the largest market share in 2022 & expected to maintain it in the forecast period. Rooftop installations are well-suited to urban and suburban areas where space for ground-mounted systems is limited or expensive. In densely populated cities, land is at a premium, making rooftop solar an attractive option for utilizing otherwise unused space.

Rooftop solar allows for distributed energy generation, meaning that electricity is produced closer to where it's consumed. This reduces transmission losses and grid congestion. Homeowners, businesses, and institutions can generate their electricity, reducing their reliance on traditional utilities and lowering energy bills.

Rooftop systems offer grid independence, providing a source of reliable electricity during power outages. This resilience is especially appealing to homeowners and critical infrastructure, such as hospitals and emergency services.

Many governments offer incentives, subsidies, and favorable policies to encourage rooftop solar installations. These may include tax credits, feed-in tariffs, and net metering programs. These policies make rooftop solar financially attractive for residential and commercial consumers, driving demand.

Rooftop solar installations often have a lower environmental impact compared to ground-mounted systems on undeveloped land. They make use of existing infrastructure and reduce land use conflicts.

Rooftop systems are highly scalable and modular, allowing users to start with a small installation and expand it as needed. This scalability makes them suitable for a wide range of applications, from residential rooftops to large commercial and industrial buildings.

Rooftop solar can be integrated seamlessly into building structures, preserving aesthetics and architectural design. Solar panels can be flush-mounted or integrated into roofing materials, making them less visually obtrusive compared to ground-mounted arrays.

Advances in solar panel technology and mounting system designs have made rooftop installations more efficient and cost-effective. Solar panels are becoming lighter, more efficient, and easier to install, contributing to the growth of rooftop systems.

Rooftop solar fosters a sense of local energy production, empowering individuals and communities to contribute to clean energy generation and reduce their carbon footprint.

Fixed Insights

The Fixed segment had the largest market share in 2022 and is projected to experience rapid growth during the forecast period. Fixed-tilt mounting systems are typically more cost-effective than tracking systems. They require less complex hardware and fewer moving parts, reducing both upfront installation costs and long-term maintenance expenses.

Fixed-tilt systems are straightforward in design and operation. They have no moving parts or motors, which means fewer components that can potentially fail over time. This simplicity translates into higher reliability and a longer operational lifespan, reducing the need for maintenance and repairs.

Fixed-tilt systems are versatile and suitable for a wide range of solar applications, from small residential installations to large utility-scale projects. They can be easily deployed on rooftops, open fields, and ground-mounted arrays, making them adaptable to various site conditions and locations.

Fixed-tilt systems offer predictable and stable performance. Once installed, they maintain a constant tilt angle throughout the year, which simplifies energy production forecasting and grid integration. In regions with consistent weather patterns and ample sunlight, fixed-tilt systems can provide reliable and cost-efficient energy generation.

Fixed-tilt systems require less land or space compared to tracking systems, making them ideal for projects with limited available land. In densely populated areas or on sites where land is valuable, fixed-tilt technology can maximize energy production within a smaller footprint.

The environmental impact of fixed-tilt systems is generally lower than that of tracking systems. They have a smaller land footprint and generate less noise during operation, making them suitable for environmentally sensitive areas. Fixed-tilt systems are easier and quicker to install compared to tracking systems, reducing project timelines and construction-related costs. This rapid

deployment is particularly advantageous for commercial and utility-scale solar projects with tight schedules.
Fixed-tilt systems are often favored for localized energy generation, such as residential and commercial rooftops, where the primary goal is to offset energy consumption on-site. They are a popular choice for distributed energy generation, aligning with the growing interest in decentralized renewable energy solutions.
Regional Insights
Asia-Pacific had the largest market for solar PV mounting systems, accounting for over 50% of the global market share in 2022. The growth of the market in the region is attributed to the increasing demand for solar energy in countries such as China, India, and Japan.
Europe had the second-largest market for solar PV mounting systems, accounting for over 30% of the global market share in 2022. The growth of the market in the region is driven by government support for solar energy and the increasing demand for clean energy from businesses and consumers.
North America had the third-largest market for solar PV mounting systems, accounting for over 10% of the global market share in 2022. The growth of the market in the region is driven by the increasing demand for solar energy in the United States and Canada.
Key Market Players
Schletter Group
K2 Systems GmbH
Esdec Solar Group B.V.
Clenergy International (UK) Ltd
BayWa r.e. AG?
SunPower Corporation
First Solar Inc
Tesla Inc.
Trina Solar Co., Ltd
Unirac Inc.
Report Scope:
In this report, the Global Solar PV Mounting Systems Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:
?□Solar PV Mounting Systems Market, By Product:
o□Rooftop
o□Ground Mounted
?□Solar PV Mounting Systems Market, By Technology:
o□Fixed
o□Tracking
?□Solar PV Mounting Systems Market, By Component:
o□PV Modules [Panels]
o□Inverters
o□Racking
o□Batteries
o□Other
?□Solar PV Mounting Systems Market, By End-User:
o□Residential
o□Commercial
o□Industrial
?□Solar PV Mounting Systems Market, By Region:
o□North America
?□United States

?□Canada
?□Mexico
o□Europe
?□France
?□United Kingdom
?□Italy
?□Germany
?□Spain
o□Asia-Pacific
?□China
?□India
?□Japan
?□Australia
?□South Korea
o□South America
?□Brazil
?□Argentina
?□Colombia
o□Middle East & Africa
?□South Africa
?□Saudi Arabia
?□UAE
?□Kuwait
?□Turkey
Competitive Landscape
Company Profiles: Detailed analysis of the major companies present in the Global Solar PV Mounting Systems Market.
Available Customizations:
Global Solar PV Mounting Systems market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:
Company Information
?□Detailed analysis and profiling of additional market players (up to five).

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