

INTELLIGENT TRACKING SYSTEM

High Performance Total Solution
Compatible with **600W+** Ultra-High-Power Modules

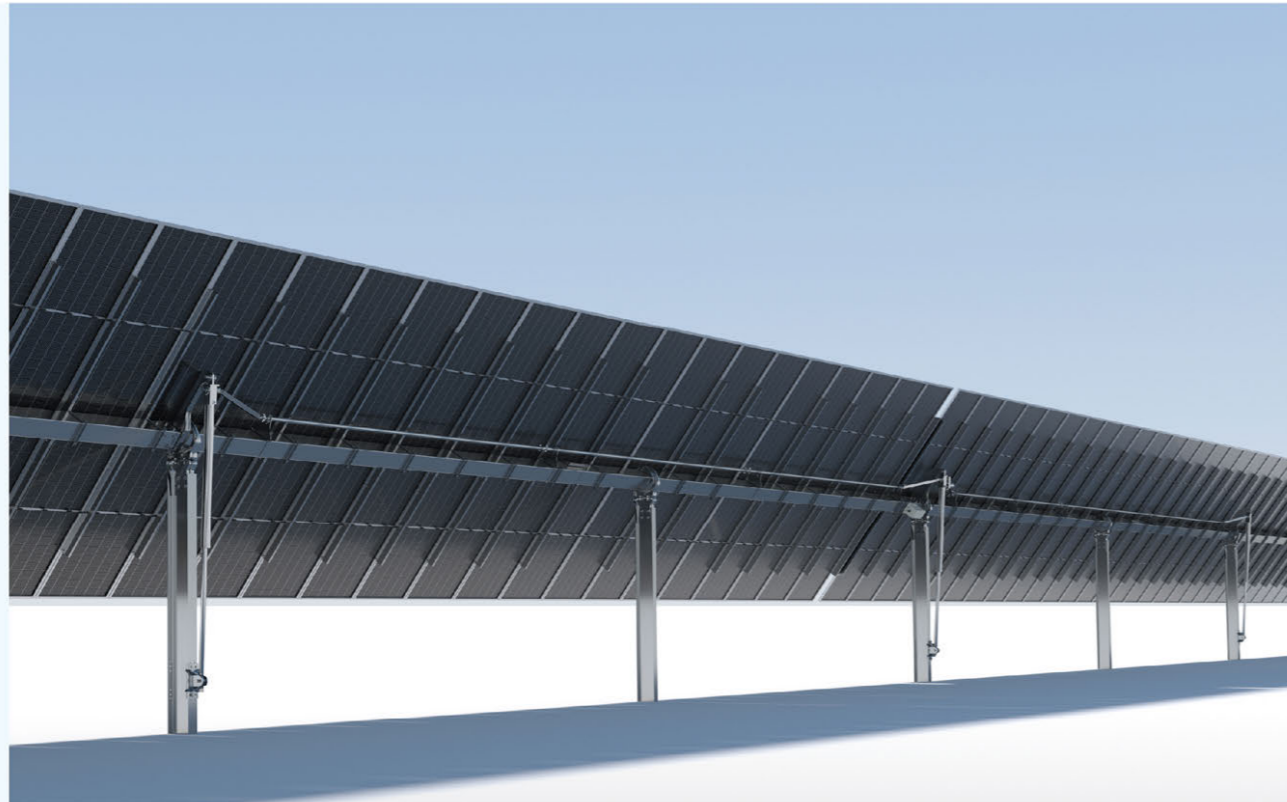
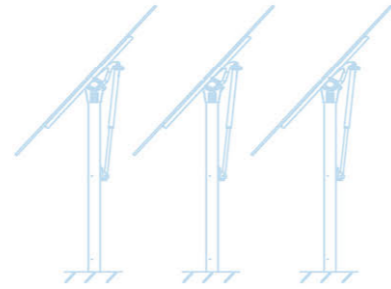


Add: No.2 Tianhe Road, Trina PV Industrial Park, New District, Changzhou, Jiangsu, 213031
Hotline: 400-988-0000
Email: sales_china@trinasolar.com

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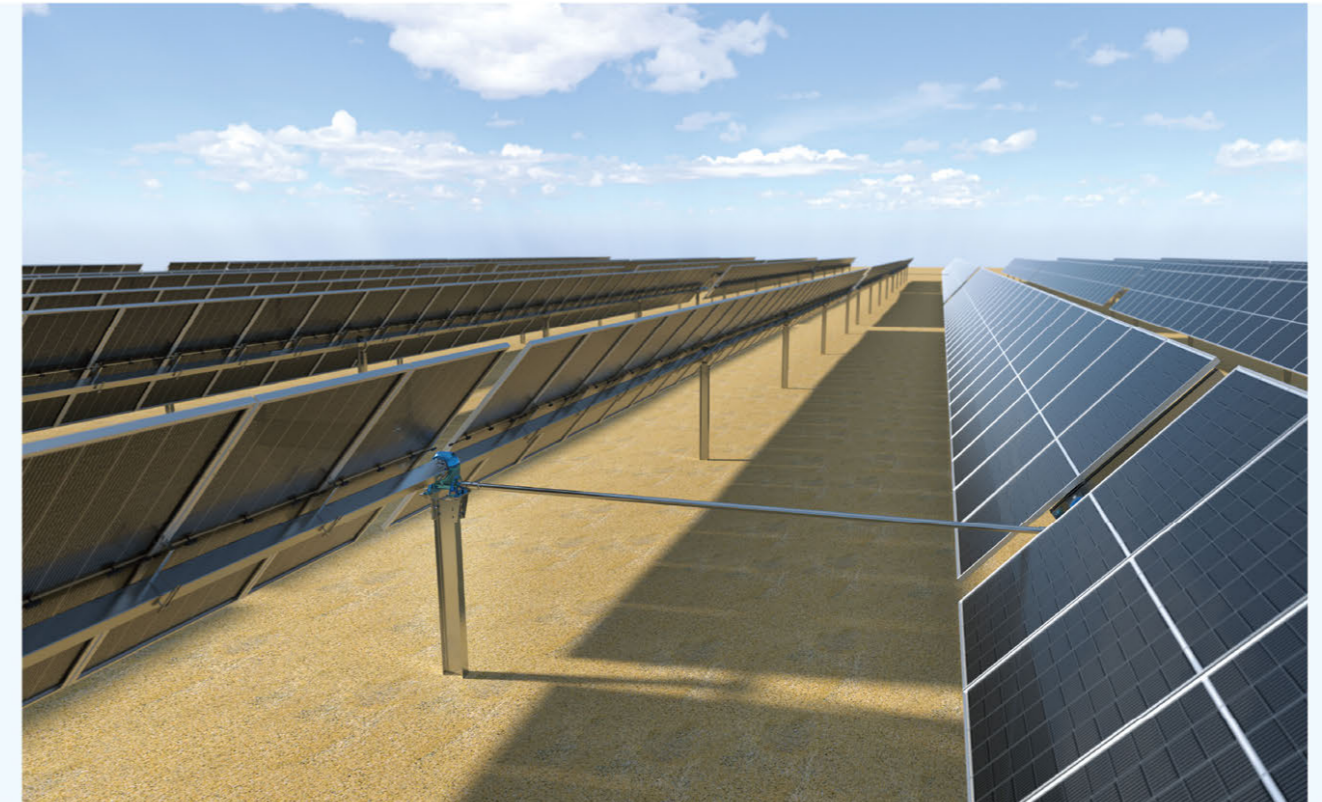
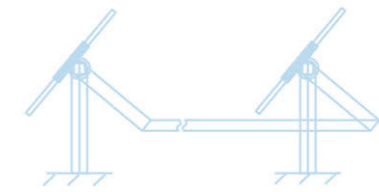
Vanguard™ -2P



Independent Horizontal Single-Axis Tracker

- 2 in portrait, specifically engineered for ultra-high-power modules up to 670W with multidrive for greater stability
- Up to 120 modules per tracker
- Up to 8% yield gain with Supertrack Algorithm
- Optimized terrain adaptability up to 15% N/S
- 102 piles per MW for lower installation cost and system BOS
- Best for challenging sites such as irregular layout, undulated terrain, and high wind regions
- Independent row design for easier accessibility of O&M vehicles

Agile™ -1P

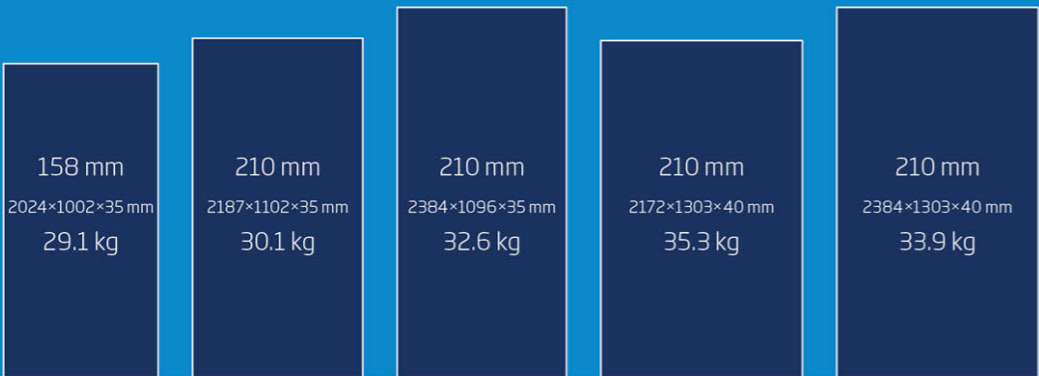


Dual Row Horizontal Single-Axis Tracker

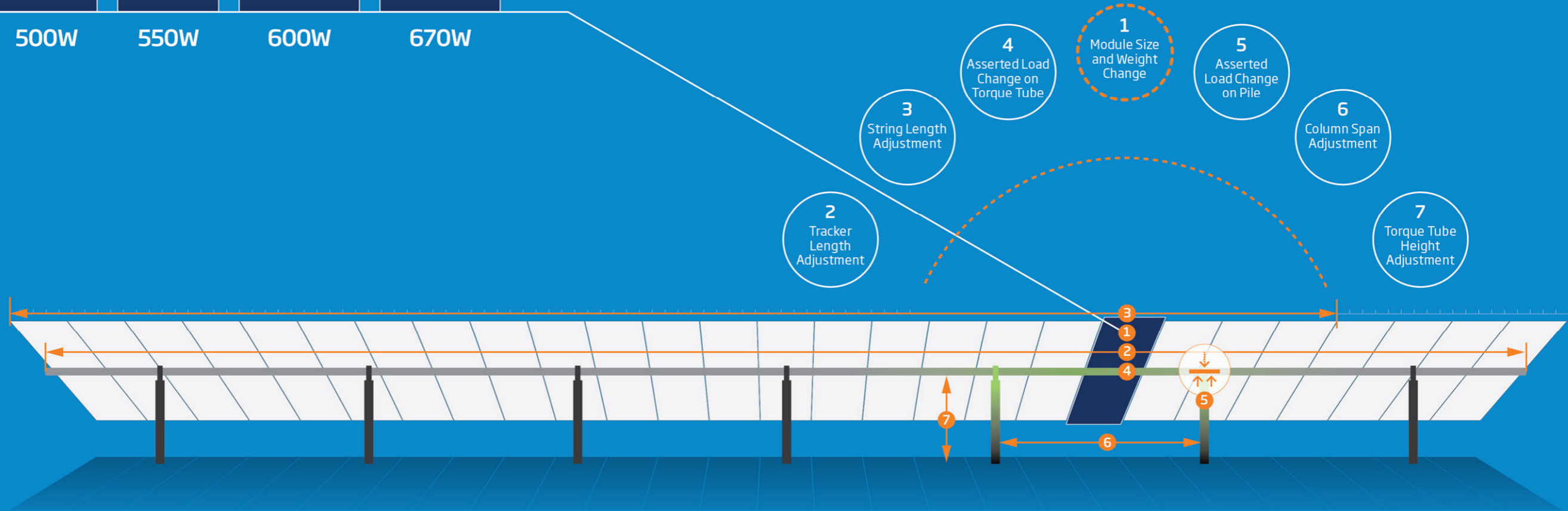
- 1 in portrait, specifically engineered for ultra-high-power modules up to 670W and enhanced bifacial yield gain
- Up to 120 modules per tracker, fewest motors/controller/battery per MW (save Capex & Opex)
- Up to 8% yield gain with Supertrack Algorithm
- Optimized terrain adaptability: 20% N/S, 10% E/W
- Tracking Range: $\pm 60^\circ$
- Best for less challenging sites
- Unique tracker configuration for easier accessibility of O&M vehicles

Comprehensive and Integrated Design of Modules and Trackers

The compelling large format module evolution was deemed to directly trigger a new generation of trackers. Updated dimensions, weight and electrical characteristics of modules demand trackers with larger table, which leads to amplifying external load and the resultant reinforced structure. Trina has coordinated internally and developed trackers along with its Vertex Module, which ensures Agile and Vanguard to be advantageously compatible with large format modules and economically optimized for system design.



400W 500W 550W 600W 670W



High Reliability Wind Tunnel Test



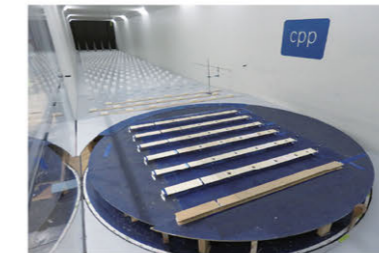
Design Validation from Wind Tunnel Test by Global Authoritative Agencies

The complex aeroelastic effects on solar system has imposed extra difficulty on tracker reliability design, one of which is torsional fluttering. It causes unpredictable and escalating amplitude vibration to tracker table and leads to inevitable structure failure in the end. To overcome this obstacle, TrinaTracker collaborated with renowned agencies (RWDI and CPP) to conduct a series of wind tunnel tests for continuous tracker design improvement. The optimized components and reinforced structure guarantee lower failure risk and better system stability.



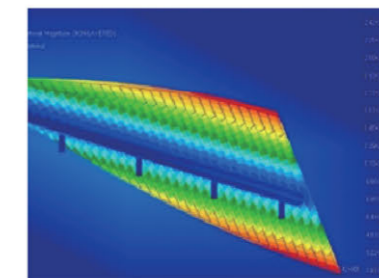
One of the best wind tunnel test laboratories in the world

To evaluate the accurate wind load distribution over modules on the (Vanquard 2P) tracker



One of the best wind tunnel test laboratories in the world

To evaluate the (Agile 1P) structural reliability from multiple tilt angles under various wind speeds.



3D Flutter Stability Analysis
Determine tracker's critical wind speed by torsional fluttering analysis regarding structural failure threshold

3D Buffeting Response
Obtain full-scale peak response and enhance structural design correspondingly

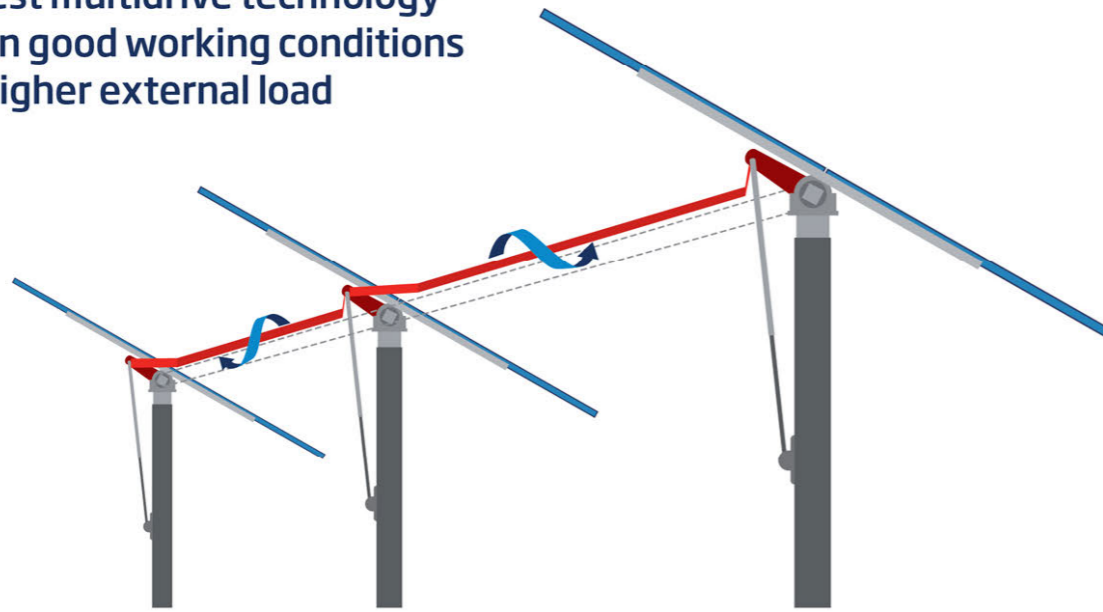
Optimize Product Design through Wind Tunnel Test:

- Strengthened external structure
- Increase the natural frequency of trackers
- Multidrive
- Formulation of wind protection strategies for different products
- Strengthen torque tube, pile, and material
- Reinforced design of purlin and torque tube connection



High Reliability - Multidrive

The latest multidrive technology maintain good working conditions under higher external load



Self-locking function

Multidrive, each drive device has a self-locking function, which can effectively reduce the impact of gust wind.



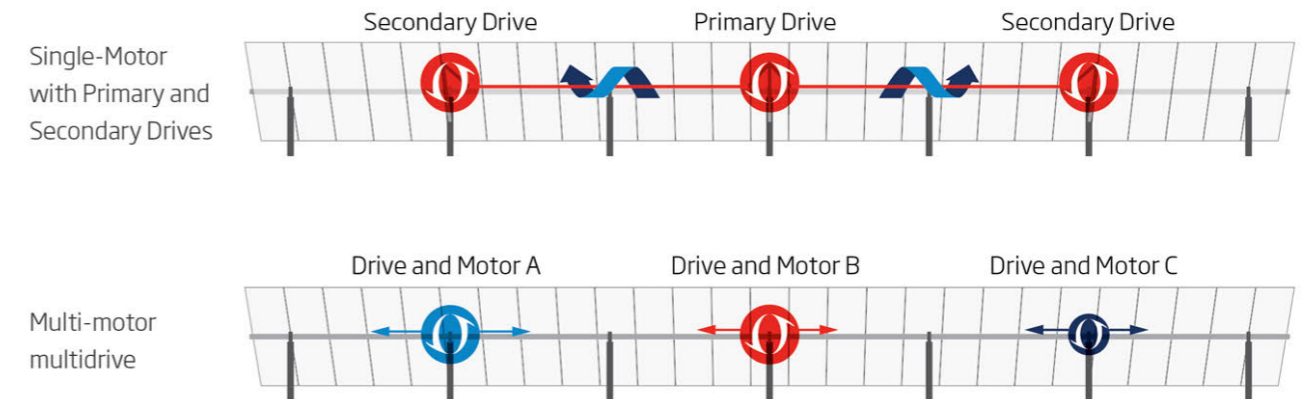
Effectively Reduce Torsional Load from Fluttering

Multidrive equivalently splits the entire tracker into multiple smaller single drive trackers whose torsion arm is shorter and resulting torsional load is lower.



High Synchronization

Adopting single motor mechanism where output power from primary drive is simultaneously transferred to both secondary drives via transmission bar to achieve higher system synchronization but lower failure rate than multi-motor design.



Strong Flexibility

Special cardan design is adopted between the transmission bars, with strong rectifying ability and easy installation.



High Stability

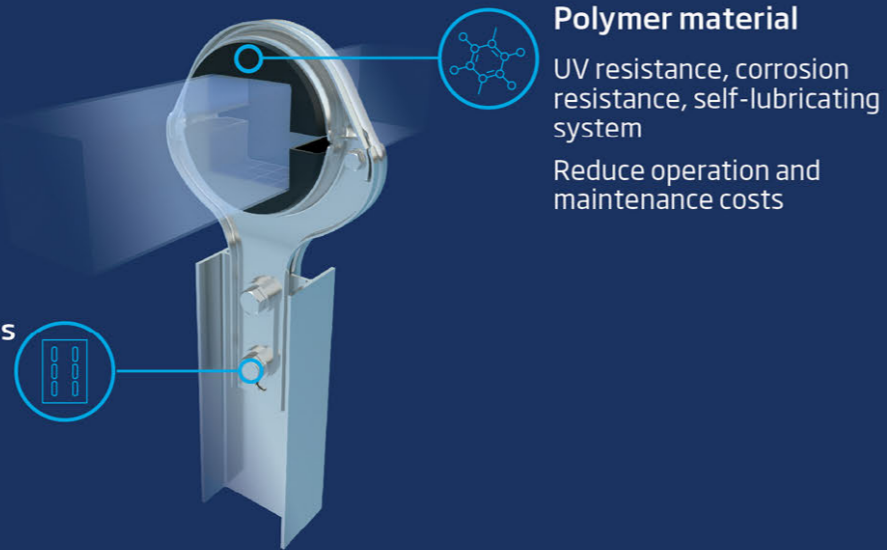
Equipped with Patented Structural Component

Global Exclusive Patented Spherical Bearing

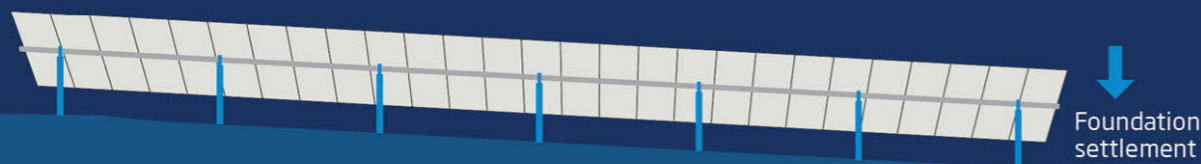
30%

High stability

Equipped with patented spherical bearings with angle adjustability up to 30%



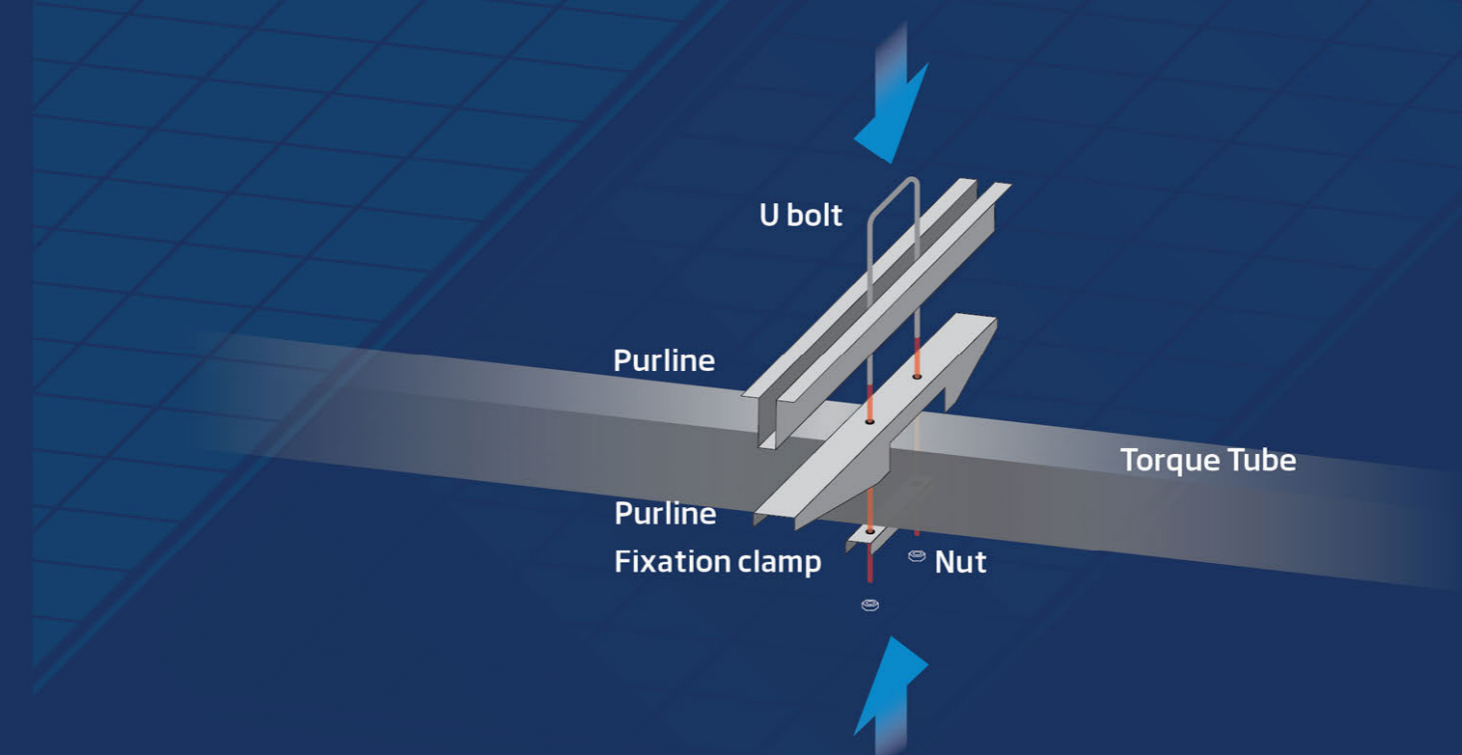
The spherical bearing has a self-adjusting function, which can automatically rectify deviations caused by installation, correct errors generated during EPC installation and construction, and alleviate the harm caused by uneven foundation settlement during the life cycle of the tracker.



Patented Module Mounting Component: Trina Clamp

-50%

Innovative Trina Clamp installation
Save 50% installation time



High Reliability

Suitable for Harsh Environments

TrinaTracker products, withstanding high wind and heavy snow confrontation attributed to extreme weather mitigation strategy, survive themselves in harsh environments such as hot and humid places, chilling regions, and corrosive areas. Therefore, TrinaTrackers are applicable in various circumstances such as desert, plain and hilly terrain, as well as solar projects with agricultural features and aquaculture features.



High altitude and low temperature climate
3200m / -30°C



Qinghai UHV Project, China

Location	Hainan island, Qinghai province
Capacity	602MW
Environment	High altitude: 3200m!
Low temperature	Down to -30°C



High corrosion area
Salt Mine Environment



Miraflores Project

Location	Los Angeles, Panama and other places
Capacity	33MW
Environment	Highly corrosive: 3km away from the salt mine

Compatible with mainstream wattage
(400W - 600W+)
modules in the market



Complex soil condition, high wind region
Expansive Clay /
Category 17 Typhoon



Clare Project, South Australia

Location	Clare, South Australia
Capacity	128MW
Environment	Complex soil condition: expansive clay High Wind Region, Hurricane zone, wind speed is up to 212 km/h (Class 17 Typhoon)



Ultra high temperature, large terrain slope
44°C /
Terrain Slope Over 12%

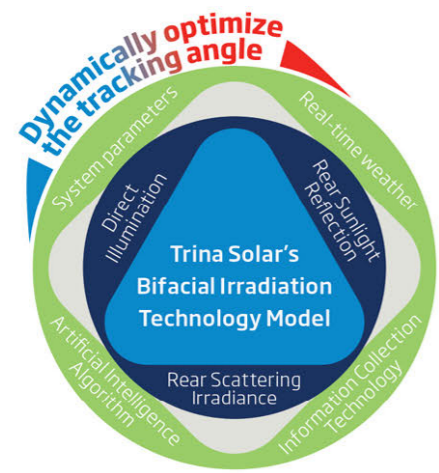


Cobra Solar Park Project, Spain

Location	Spain
Capacity	190MW
Environment	High temperature 44°C large terrain slope: Over 12%

Increase Power Generation

SuperTrack Intelligent Tracking Algorithm



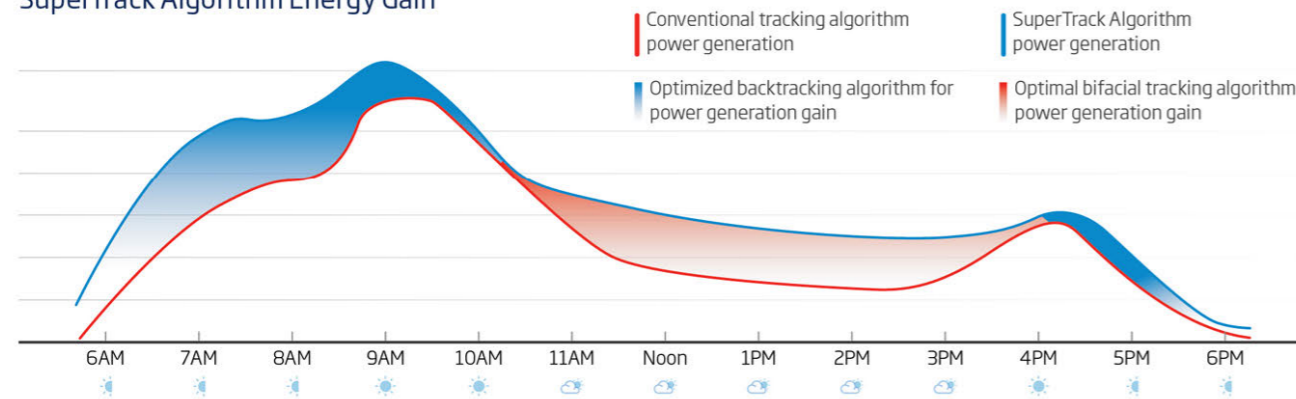
SuperTrack™

Increase Power Generation
3~8%

(the following data is derived from Tongchuan project in Shanxi province.)

TrinaTracker is one of the first vendors that offers optimizing tracking algorithm for "bifacial + tracking" system in the industry, focusing on capturing the combination of direct illumination + rear sunlight reflection + rear scattering irradiance. Based on the patented model of Trina Solar's bifacial irradiation technique combined with advanced information collection technology and artificial smart algorithms, SuperTrack dynamically optimizes the tracking angle according to the real-time weather conditions and system parameters which will ultimately realize a substantial yield gain in bifacial applications.

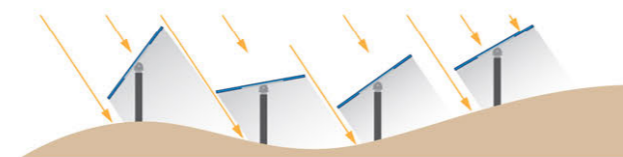
SuperTrack Algorithm Energy Gain



Smart Tracking Algorithm



Smart Backtracking Algorithm



Case Study

30MW Tongchuan (China)

LCOE REDUCED BY
2.44%

POWER GENERATION

+17%

Compared with fix tilt

+3.08%

Compared with conventional tracking

LCOE

-5.83%

Compared with fix tilt

-2.44%

Compared with conventional tracking



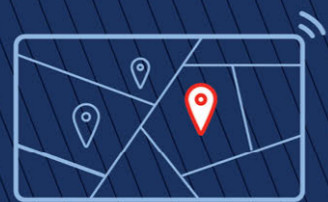
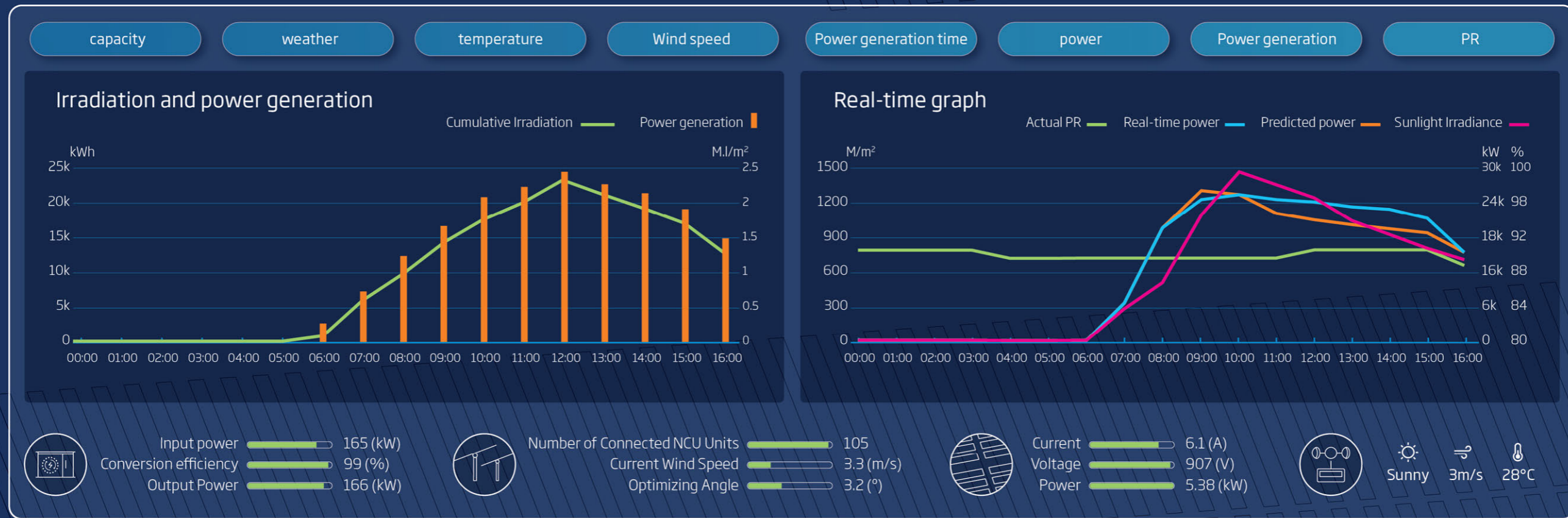
Project	Tongchuan 30MW, China	Terrain	The height difference between both ends of the tracker is about 0-30 cm
Location	35.16°N, 109.17°E	Test for 30 days	Sunny 24 days, cloudy 6 days
Working temperature	-21°C ~ 39.7°C	Module	TSM-NEG6MC.20(II) bifacial 335W module
Radiation	1300kWh/m ² ~ 1400 kWh/m ²	Tracker	SP160 2P, pitch is about 9 meters
Wind speed	0.20kN/m ² (10 years once)	Inverter	Huawei SUN2000-175KTL inverter, 9 trackers per inverter, 2 strings per tracker, 32 modules per string
Site condition	grassland		
AC Capacity	30MW		

Low O&M Cost - SCADA System

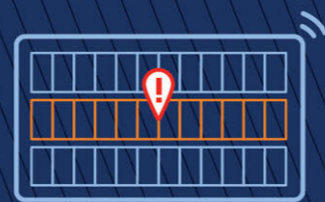
TrinaTracker SCADA System

TrinaTracker SCADA is a new-generation smart visualized monitoring and control system. This enhanced system can effectively reduce tracker down time under a variety of weather conditions, diagnosis a real-time tracker problems and perform troubleshooting to irregularly operating tracker.

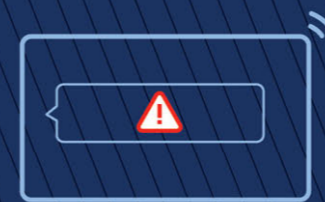
TrinaTracker
SCADA System



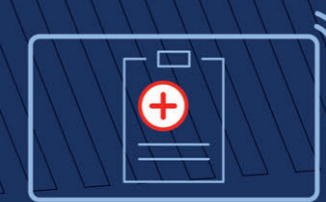
Remote Monitoring



Early Alarming



Intelligent Diagnosis

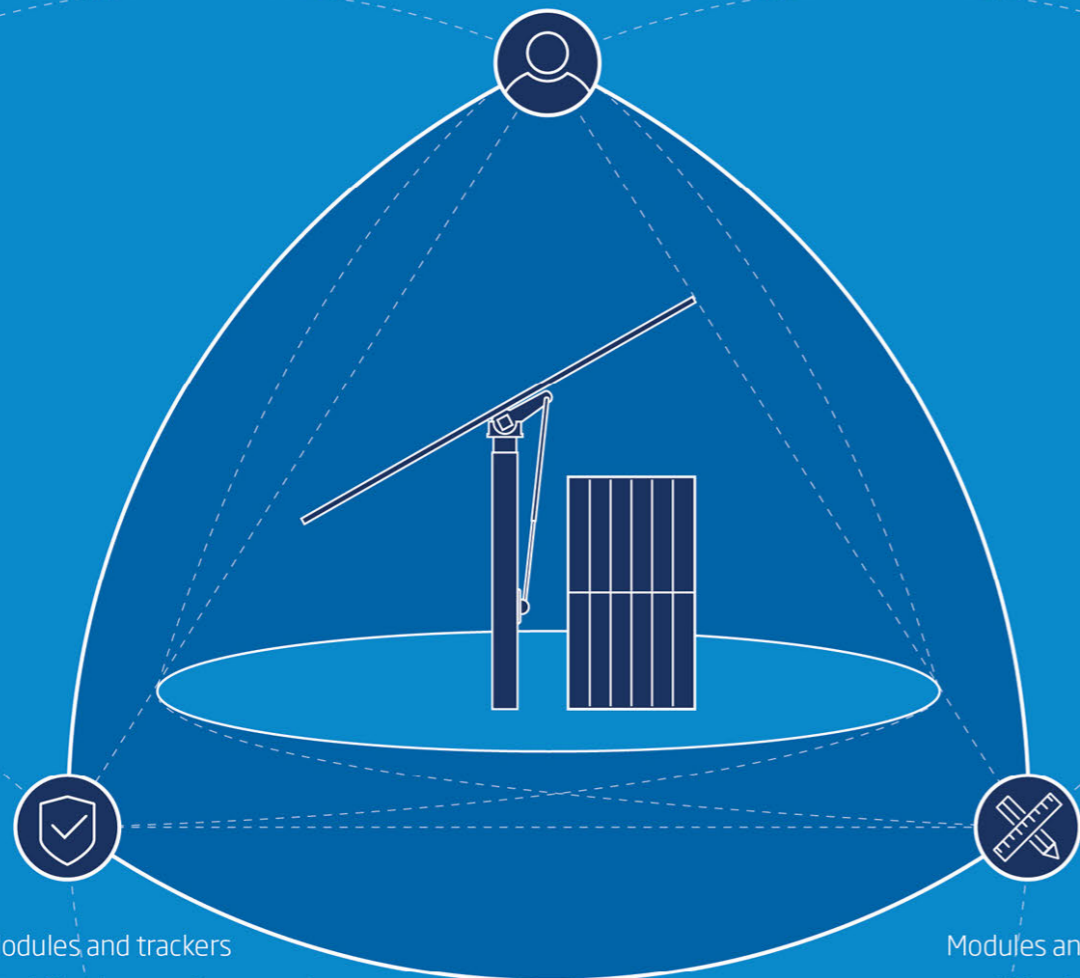


Troubleshooting

Easier Overall Solution

Integration of Modules and Trackers Channel, Products and Services

Module Sales + Tracker Sales
Unified Business Channel



Modules and trackers

Unified service and quality assurance channel

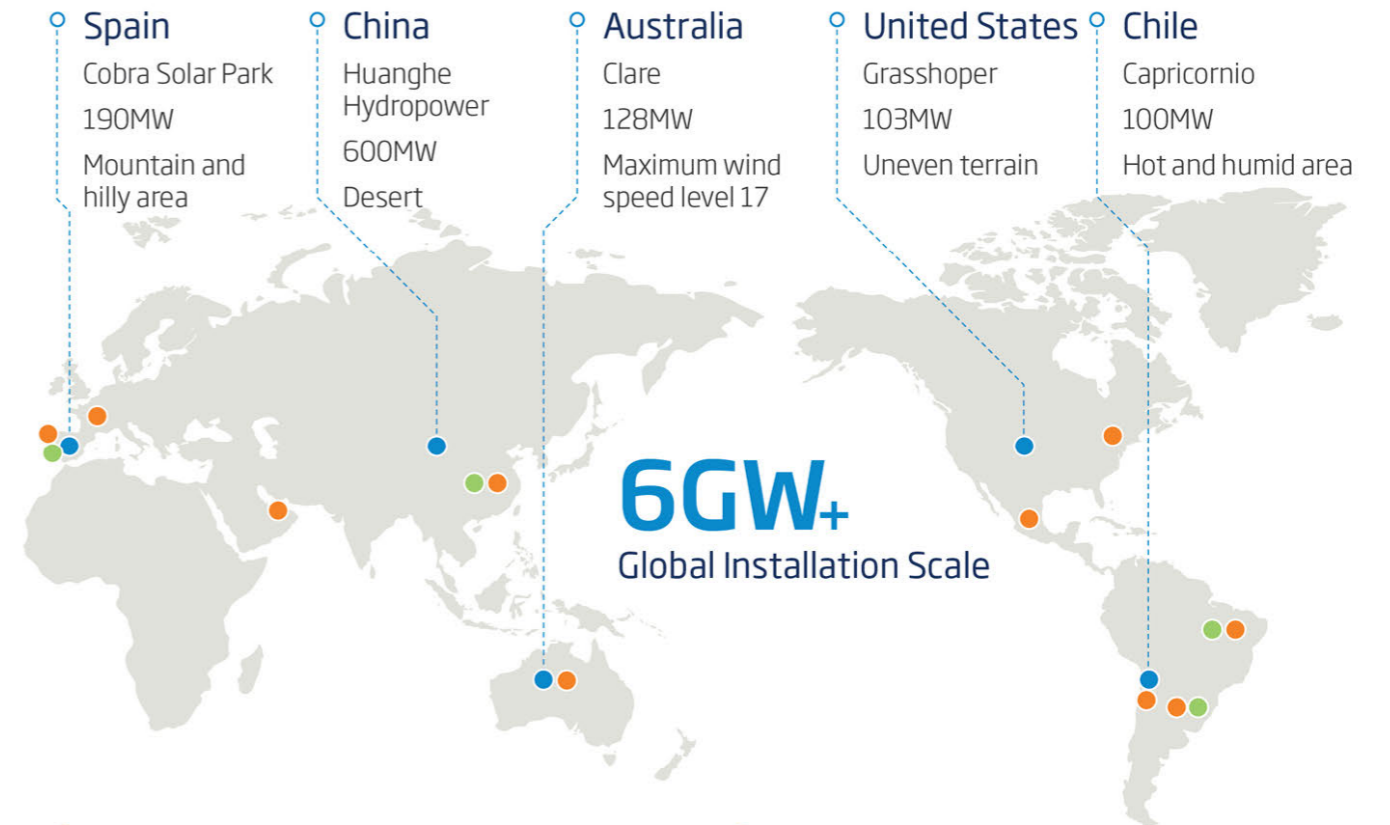
- Unified sales and after-sales service channel
- Unified quality assurance subject

Modules and trackers

Unified plan design channel

- Project design
- Equipment sizing
- Layout optimization
- System integration

Business Globalization



Offices & Branches

Spain France United States Brazil Chile
Argentina UAE Mexico Australia China

Production center

Spain Brazil Argentina China

12 YEARS

Over 12 years of experience

6GW+

Cumulative delivery

40 COUNTRIES

On five continents

8GW+

Global production capacity in 2021