

Top-Modules – Quality made by SolarWorld



www.solarworld.com

We turn sunlight into power.





Quality is our duty

Customers around the world rely on the SolarWorld brand. Those who choose SolarWorld receive top quality products from a manufacturer that implements a standardized quality system at all of its sites.

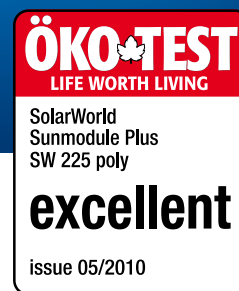
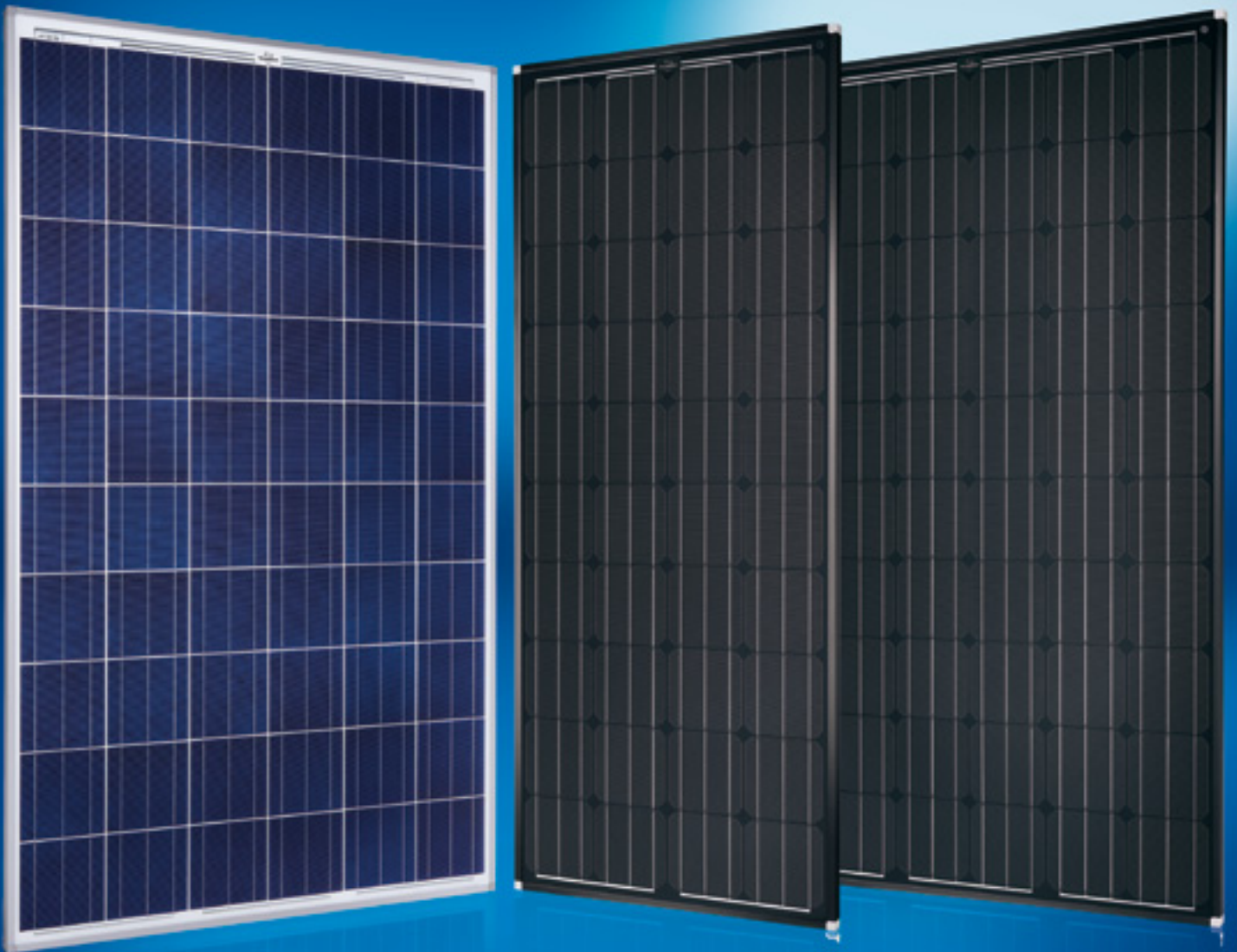
Fully automated production and thorough controls ensure reliability and consistency on all production levels – from the raw material silicon to wafers, cells and modules all the way through to recycling. Our intense research and development ensures efficiency and continuous innovation at every site.

Worldwide, we choose locations with the highest environmental and social standards for our production. In addition to our largest production site in Freiberg, Germany (Saxony), we systematically implement SolarWorld quality management at all of our production sites worldwide. Whereas other PV manufacturers opt for the discounted route, we always deliver maximum quality and performance at a fair price.

We know what our products can do and pass on this security to our customers. That is why we are now offering an extended 10-year product workmanship warranty for all installed modules. The linear performance guarantee for 25 years represents clear added value for our customers and it constitutes the best way to protect an investment in your own solar power system. Moreover, in Germany, at the end of a Sunmodule's life-cycle, SolarWorld guarantees to receive the modules for recycling.

Sunny greetings,

Dr.-Ing. E. h. Frank Asbeck
CEO SolarWorld AG





Our modules

High-quality, reliable and powerful – our Sunmodule Plus® mark ensures yield stability and excellent product properties. **SolarWorld's plus-sorting is unique and ensures top system efficiency.** The power of every module is determined using an oversized flasher. The modules are then sorted from lowest to highest wattage before they are labeled and packaged. Only modules “flashed” with the rated power or higher are delivered. The rated power graded in 5-watt intervals prevents time-consuming pre-sorting of modules on site.

In-depth in-house quality controls that go far beyond required international standards ensure an extra level of security. All materials are tested in cooperation with external institutes before they are approved. This process, as well as the certification of the finished products, is managed from the group headquarters in Bonn. In cooperation with notable certification organizations, the modules undergo a multitude of tests, such as the ammonia test, which tests the suitability of our modules for use in agricultural operations.

With the new TUV Rheinland test “Power controlled”, it is guaranteed that the performance indicated for a Sunmodule Plus® solar panel is being met and that it is regularly monitored by the independent test service provider, TUV Rheinland. The new test mark complements the existing linear performance guarantee. This additional security for investors and consumers is a further testament of SolarWorld's commitment to comprehensive quality assurance.

Moreover, the module test laboratory of SolarWorld Innovations (SolarWorld AG's research company) is the first German PV test laboratory to be certified according to the standard DIN EN ISO/IEC 17025 by the VDE (German Association for Electrical, Electronic & Information Technologies). This certification demonstrates that SolarWorld's laboratory is meant for internal quality checks and long-term testing is managed to the highest international standards. This accreditation ensures that these laboratories operate with transparency, expertise, and neutrality.



- Qualified, IEC 61215
- Safety tested, IEC 61730
- Periodic Inspection
- Power controlled





Our quality, our warranty, our service

If you produce maximum quality, you can provide a maximum guarantee. SolarWorld is the first solar company to offer a **linear 25-year performance guarantee**.*

SolarWorld guarantees that on average annually, the performance of the module cannot deviate from the specified rated power by more than 0.7 percent. For example, SolarWorld guarantees performance at 95.6 percent in the third year – clear added value compared to standard guarantees, which promise only 90 percent and can even drop to 80 percent over time.

In addition to the 25-year linear performance guarantee, SolarWorld also offers an extended **10-year product workmanship warranty***. This warranty applies to all SolarWorld quality modules and goes well beyond the two years required by law. With this change, our warranties now provide double protection for our customers' investments.

The employees at the SolarWorld Distribution Center in Bonn are the direct contacts for consulting, service and customer support. They are ready to provide expert assistance and technical support for all of customers and end-users.

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E-Mail: aftersales@solarworld.de



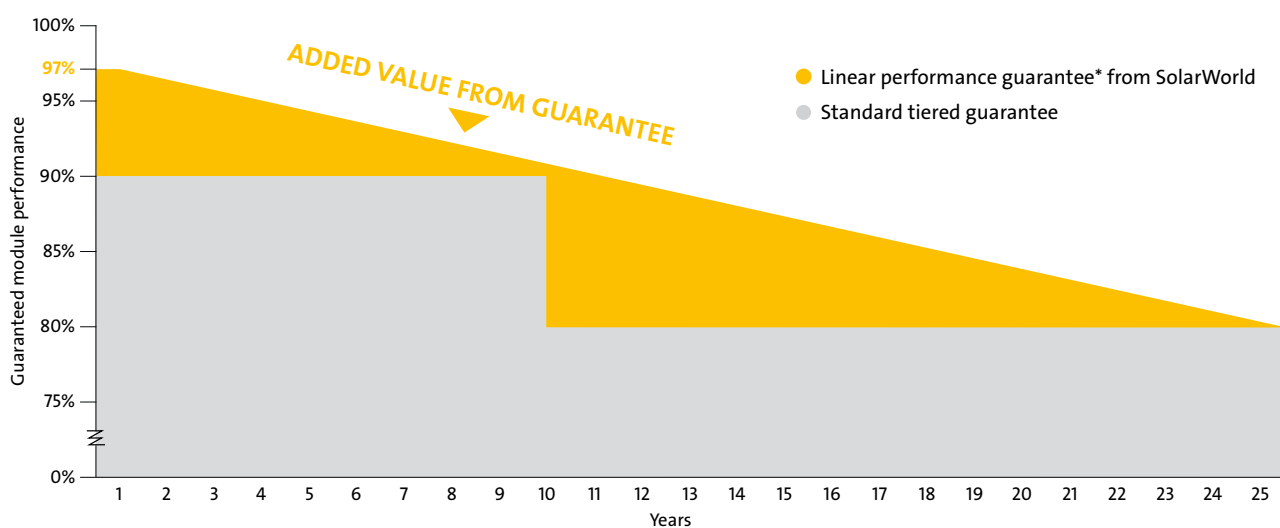
OUR WARRANTY! YOUR PEACE OF MIND.

For all SolarWorld modules
installed as of January 1, 2011:

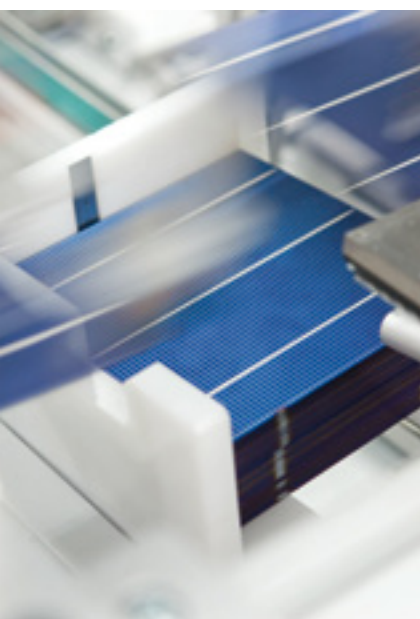
- > 10-year product
workmanship warranty*
- > 25-year linear performance
guarantee* – guarantees at least
97% of the rated power in the first
year and a maximum reduction in
power of 0.7% per year thereafter*

**NEW! 25-YEAR
LINEAR PERFORMANCE
GUARANTEE AND AN EXTENDED
10-YEAR PRODUCT
WORKMANSHIP WARRANTY***

Linear performance guarantee*



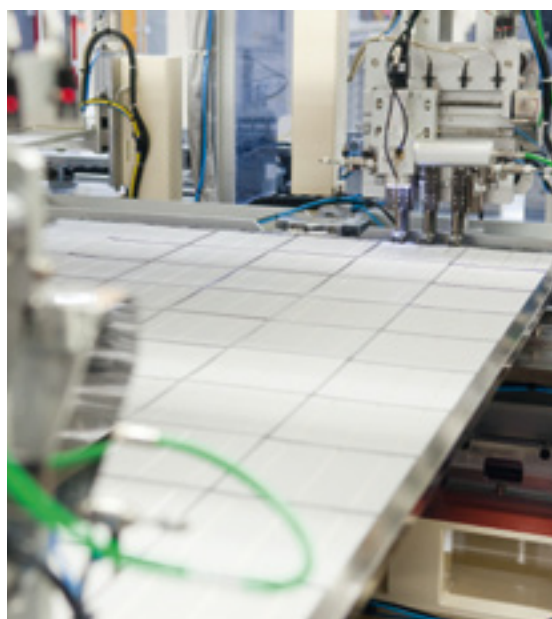
* in accordance with the applicable SolarWorld service certificate at purchase | www.solarworld.com/service-certificate



1. Incoming goods inspection



2. Stringer



3. Matrix unit



4. Laminator

Our module production

SolarWorld's production sites around the world are united under the same uniform standards. Module production is based on group-wide quality management, which is defined during a central audit and includes standardized material testing. Strict environmental management and a regular exchange among the sites insures homogeneous and sustainable production processes.

In this manner, modules are produced at the highest level of quality, at every step:

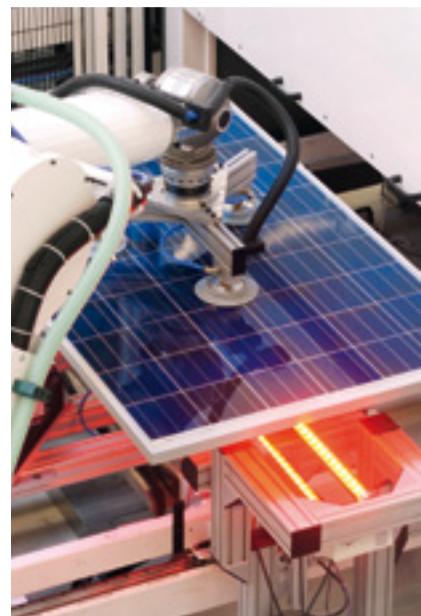
1. Incoming goods inspection
The efficiency of each solar cell is tested and the cells are checked for any damage before they are processed.
2. Cell connector to form strings
Solar cells are soldered together to form strings; the front side of one cell is connected to the rear side of another cell by three cell connectors.
3. Matrix unit
The matrix unit combines the strings into a matrix, a grid of solar cells (for example 60). In the next step, a "sandwich" is created comprised of solar glass, three layers of film and the solar cells.



5. Attaching the junction box



6. Frame



7. Determination of performance and quality

4. Laminator

The laminator is a large vacuum furnace which laminates solar glass, film and solar cells together, at very high temperatures creating a weather-resistant unit. Each laminate or “sandwich” is subject to strict checks in advance.

5. Attaching the junction box

A robot places the patented junction box on the rear side of the laminate. The junction box is manufactured in a single cast with welded joints rather than soldered joints for maximum reliability even under the highest loads.

6. Frame

The laminates are transported to the fully automated framing station and then pressed together with an aluminum frame and matching corner angles. In order to make the solar module even more weather-resistant, the frames of SolarWorld modules are glued to the laminate by a top quality 2-component silicone.

7. Determination of performance and quality

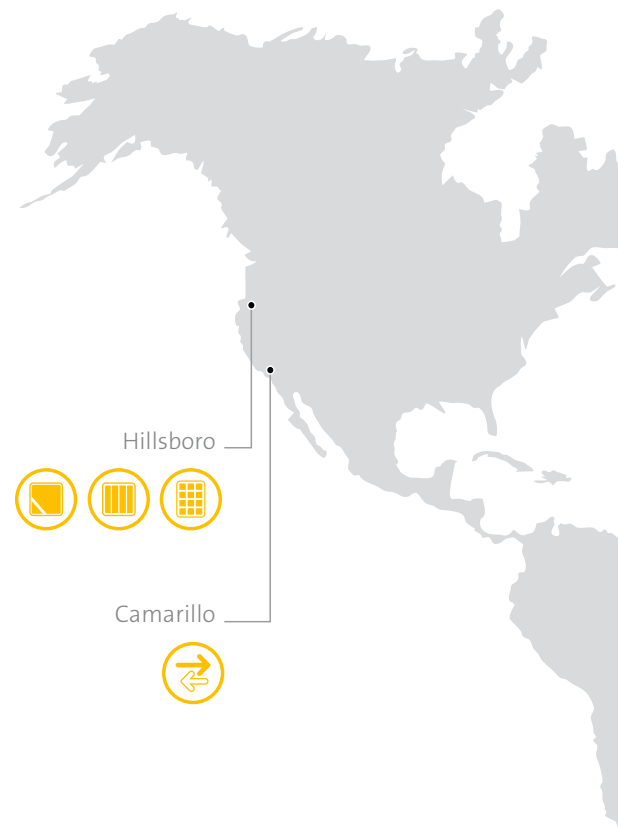
A flasher determines the power of individual solar modules under standard test conditions (STCs). In addition to the performance, the appearance of each module is checked as it also plays an important role. Each module is labeled individually, indicating the type, performance and production site.

Our locations

SolarWorld AG is one of the world's largest solar companies and has locations in all important target markets. The result is short distances and cost-optimized production processes. Uniform quality standards and high-tech production facilities are the prerequisite to be competitive on a global scale. This strategy is our basis for expanding into new markets.

SolarWorld is at home in Germany. The production site in Freiberg, a university city in the state of Saxony, has a long history in semiconductor technology. From silicon to the modules, all production steps are well established at the site in the immediate vicinity of SolarWorld's own research and development company, SolarWorld Innovations. Connections with the Technical University Bergakademie Freiberg and with Dresden, which is a major player in the semiconductor industry, create an innovative climate with a large pool of specialists and expertise.

SolarWorld has two major locations in the United States. The sales location in Camarillo, California, has been producing solar modules since 1977, whilst the site in Hillsboro, Oregon, brings new expertise in monocrystalline modules to the solar group. As of 2008, the site is the United States' largest photovoltaic production plant. With our new Solar Factory III in Freiberg, the group is venturing into new dimensions and solar modules are being produced in record time. Due to an optimized logistics system, modules are shipped even faster from Germany to destinations all over the world.



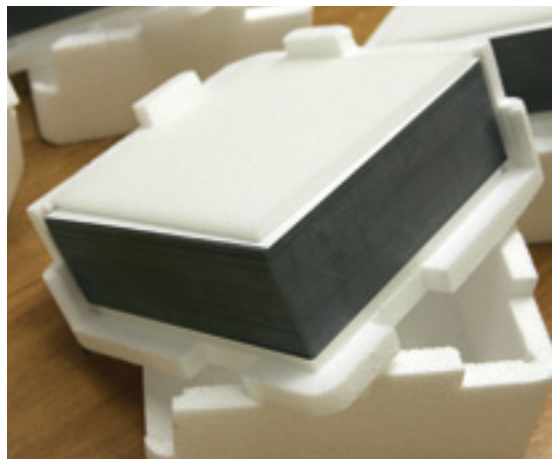
Silicon



Wafers



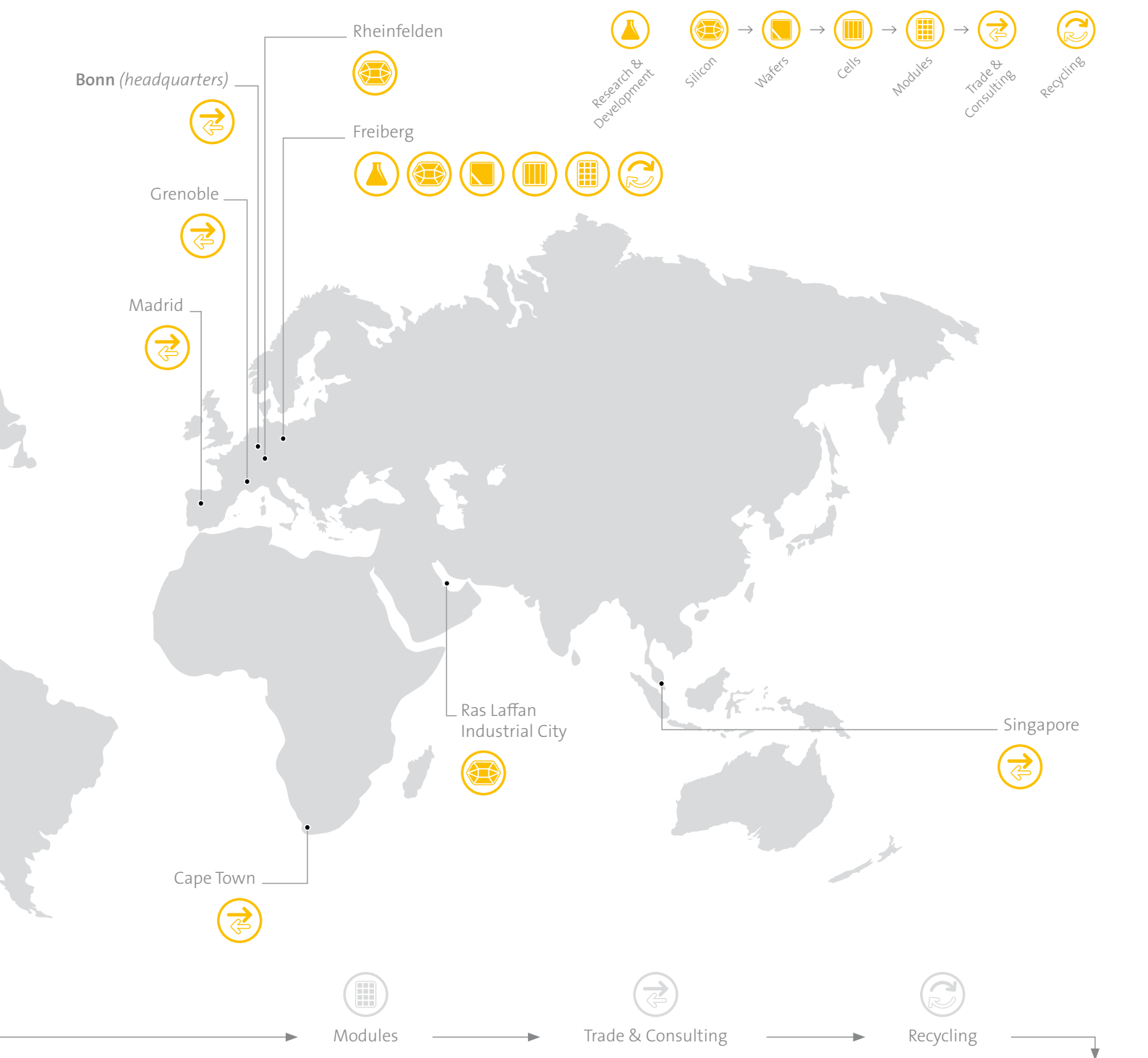
Cell



Freiberg
Rheinfelden
Ras Laffan Industrial City

Freiberg
Hillsboro

Freiberg
Hillsboro



Freiberg
Hillsboro

Bonn
Camarillo
Grenoble
Madrid
Cape Town
Singapore

Freiberg

**MAKING THE FUTURE:
PRODUCTION CAPACITY HAS
ALMOST BEEN QUADRUPLLED.
MODULE PRODUCTION FROM 170
TO 600 MW.**



Freiberg · Germany

SolarWorld Group produces poly- and mono-crystalline modules for the international market at its high-tech site in Freiberg, Saxony. Wafers and cells are also produced at this site. Fully automated systems, seamless process and material flow monitoring, regular electrical and optical measurement, and inspection of intermediate products are the factors to ensure the group's high quality standard at its locations worldwide today. At a site where science, research and technological development have a long tradition, "Silicon Saxony" is home to many highly qualified and motivated specialists, which SolarWorld AG and its subsidiaries need. Cooperation with the city's Technical University is exemplary, thus making Freiberg an ideal location with excellent opportunities for expansion – both in terms of space and human resources.

Freiberg is today considered a "solar city" since a good percentage of the city's labor force work directly or indirectly for SolarWorld AG, which along with its subsidiaries is the region's largest industrial employer. Wafers have been manufactured from solar silicon in Freiberg since 1994. When Solar Factory, SolarWorld's module production facility in Freiberg opened in 2001, it became Germany's first fully automated and integrated production facility.

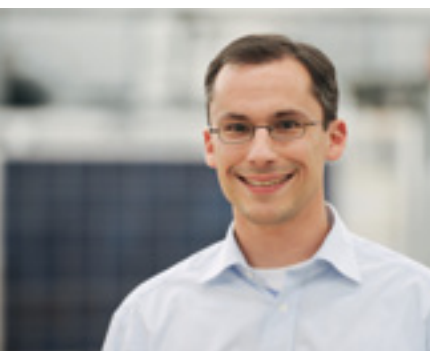


Freiberg: Quality is at home in Saxony.

The SolarWorld Group integrates all stages of the solar value-added chain – from the raw material to cells and modules all the way to recycling – into its Freiberg location. If you are looking for the home of SolarWorld quality, you will find it here.

And Freiberg is also home to the technical soul of SolarWorld. With expertise unique in the world, systematic research and development and the best engineering, SolarWorld is working on the progress of solar power technology and its industrial dimension in Freiberg. That is what gives the SolarWorld group its advantage – and customers around the world benefit.

Another example of the performance power of Freiberg: thanks to the new wafer production plant, the site produces an annual wafer capacity of one Gigawatt. That is equivalent to the power generated by a nuclear power plant.



Michael Eberspächer
Head of Quality Assurance at Solar Factory



Holger Reetz
Managing Director of Solar Factory

Module production in Germany

Products:

SolarWorld Sunmodule plus poly, mono black, Compact mono black, Off-grid, special designs

600 MW production capacity

450 employees

2,500 SolarWorld employees total in Germany including wafers, cells, research, and sales





**MAKING THE FUTURE:
PRODUCTION CAPACITY
WAS MORE THAN TRIPLED.
MODULE PRODUCTION
FROM 150 TO 500 MW.**

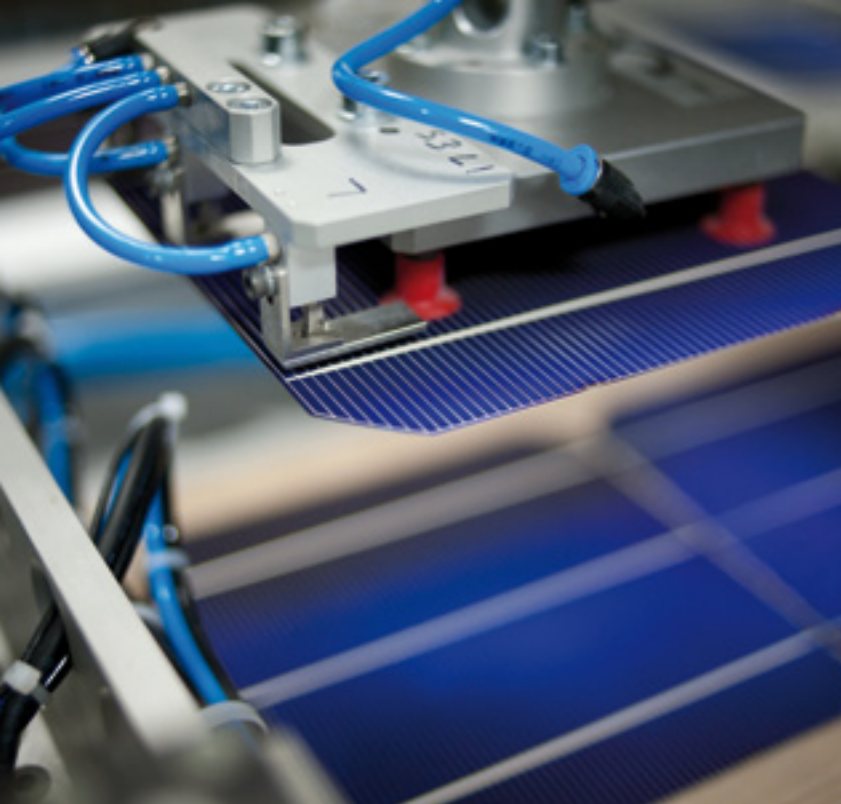


Hillsboro and Camarillo · United States

By specializing in the production of monocrystalline modules, SolarWorld AG is reacting to the high demand in the United States. The sales location in California and the state-of-the-art site in Oregon constitute the innovative platform of the SolarWorld Group for broad-based expansion in the American market.

SolarWorld considers itself not as a German company in the United States but as an American company right in the middle of the American market with American production – but with German quality standards.

The American market offers extremely high potential for growth similar to the stage of development in the German market as it was eight or ten years ago – although on a larger scale and with higher quantities. Due to favorable government incentives, the course has been newly set for projects in photovoltaics. Therefore, SolarWorld's prospects are very promising in this rapidly developing market.

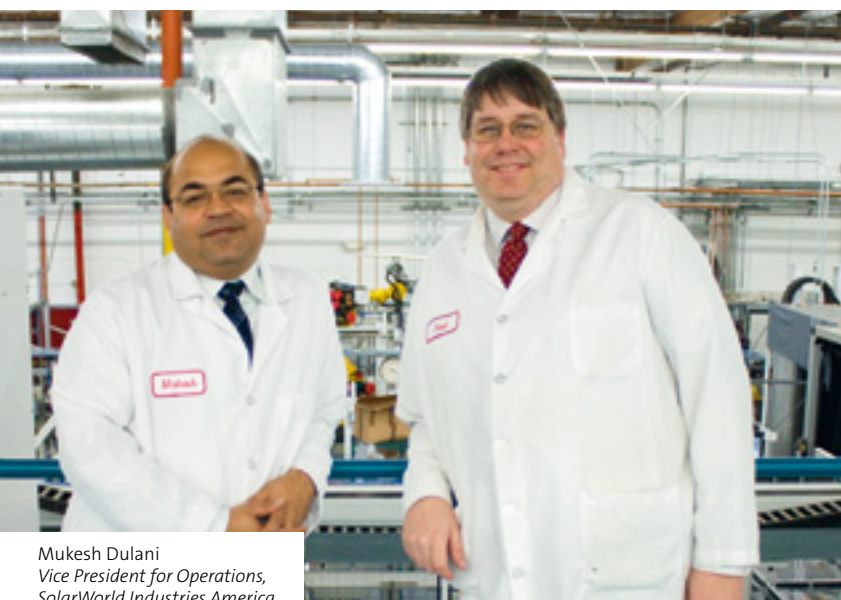


SolarWorld Quality – made in the U.S.

SolarWorld AG is one of the largest manufacturers of solar power technology. The group integrated the United States' first industrial module production facility. SolarWorld thus has over 35 years of experience in research, production and distribution in North America. The first modules continue to produce electricity today – proof of the product's durability.

SolarWorld is continuing to expand. Based on the model of the Freiberg site in Germany, Oregon includes all stages of the value-added chain – from the wafer through to the module "100% made in the U.S."

After the expansion of production capacities, around 1,100 people are employed in the United States.



Mukesh Dulani
Vice President for Operations,
SolarWorld Industries America

Module production U.S.

Products:

SolarWorld Sunmodule plus poly, mono,
mono black

500 MW production capacity

300 employees

1,100 SolarWorld employees total
in the U.S., including wafers, cells





Our employees

Together we share a worldwide commitment to a solar future. To do so requires employees who share our view and will give their all to pursuing our company vision. Our assets are our about 3,500 highly trained specialists in production, research, administration and sales. They do their utmost every day to give SolarWorld customers only the best: guaranteed reliability, recognized uncompromising name brand quality.

Targeted training and cooperation put into practice set the stage for market success. We are able to reach our goal through close cooperation and regular exchange: consistently high-quality products at all sites through uniform knowledge standards. It is a strategy that pays off for everyone, especially for our customers.



Tomorrow today: SolarWorld encourages up-and-coming specialists and thus prospective employees who want to continue along our path. It is not without reason that we were named one of the best 100 employers in Germany. We present the SolarWorld Einstein Award to up-and-coming researchers each year, we founded an Endowment Fund for Academic Research together with the Technical University Bergakademie Freiberg and we developed the SolarWorld No. 1 solar-powered race car together with students from the Bochum University of Applied Science

Build a SolarWorld. About 3,500 employees are at work on the solar world.



Our commitment

Sustainable products have to be sustainably produced. SolarWorld AG advocates the introduction of stricter **environmental** and **occupational safety standards** and encourages their use in the entire solar industry. Standards include transparency and regular inspections, **ISO 9001 and ISO 14001 certification** at all levels of the value-added chain, **elimination of heavy metals** across the board and **mandatory module recycling**. Moreover, the **United Nations Global Compact** must be **followed** as a matter of course. SolarWorld participates in this initiative for corporate responsibility and has pledged to **campaign against child labor, forced labor and corruption** and **to advocate for human rights, codetermination and responsible treatment of the environment**.

As the first provider of crystalline solar modules to implement its own module recycling program, SolarWorld has set the standard. We do not use the heavy metal cadmium. We believe this environmental toxin has no place in sustainable solar power modules. By having our modules successfully recertified with lead-free soldering technology, we have set the stage for converting to entirely lead-free products. In so doing, we are again taking the lead in the German solar industry.



Through our **Solar2World projects**, SolarWorld is helping develop poorer regions around the globe and is donating solar power modules, which provide clean energy and open up new opportunities, to aid organizations. The program gives SolarWorld AG employees the chance to oversee projects in developing regions around the world and gain personal experience in the solar world.

SolarWorld AG was awarded the German Sustainability Award for “Germany’s Most Sustainable Production”. SolarWorld also received a prize in the “Germany’s Most Sustainable Brand” category and was chosen as one of the 100 best employers. These honors show that our notion of responsibility for environmental protection and human interaction is being noticed – and that we are doing right by the world. We are sure of it. Just like our employees who stand behind and stand up for our company philosophy day in and day out, setting the stage for a safe, clean and solar future through sustainable products.



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deutscher
nachhaltigkeitspreis



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