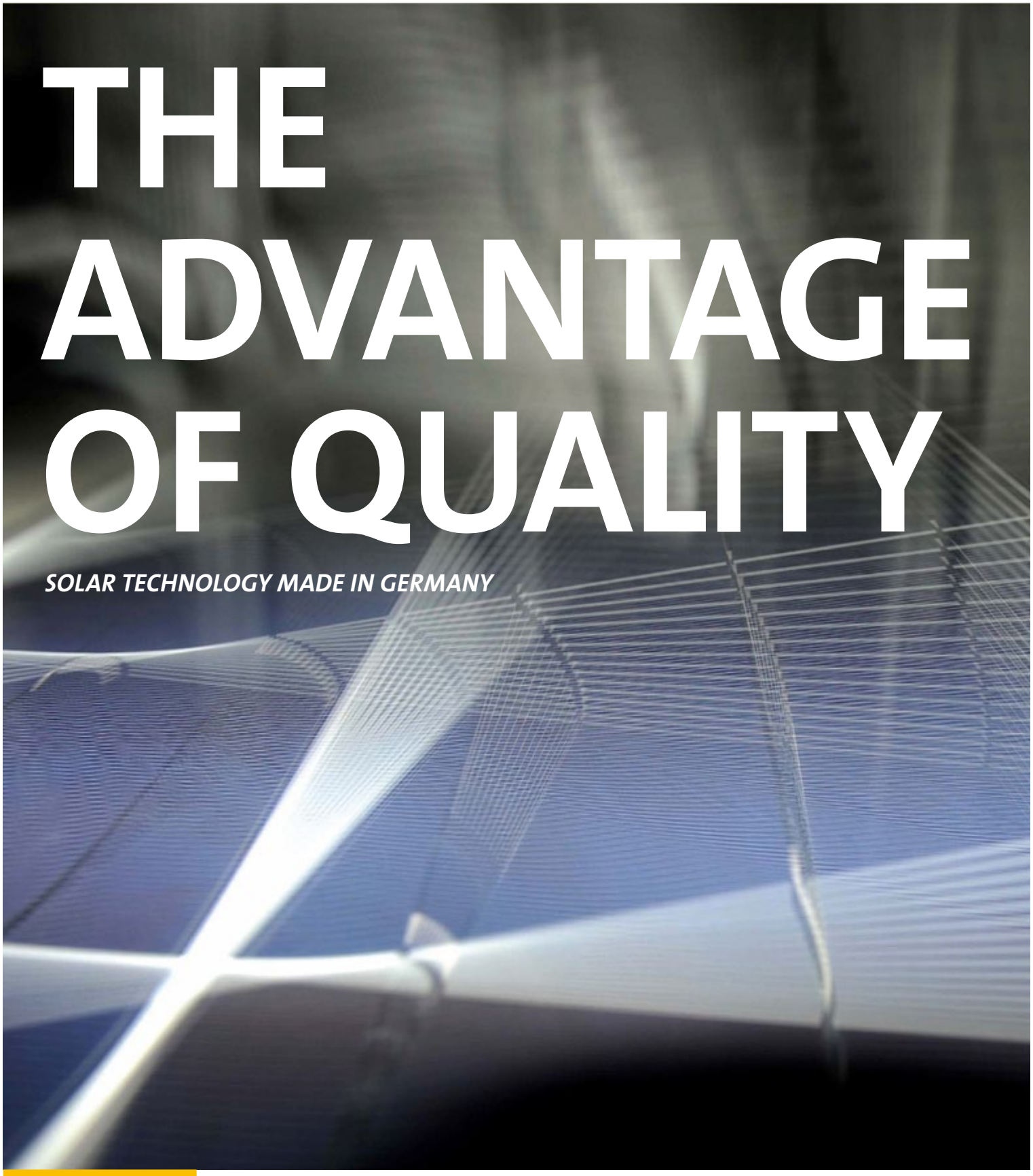



**SolarWorld** I *Quality*

SOLARWORLD

We turn sunlight into power.

www.solarworld.com

# What does SolarWorld stand for? What drives us? What is our vision? In clear and simple terms – to build the solar world of tomorrow, today.

The SolarWorld commitment to sustainable energy goes back 30 years. We believe energy should be supplied not only in accord with the requirements of people, but also with those of the environment. To achieve this goal, we produce premium quality solar modules and solar system solutions in Germany. Quality is the determining factor in our production processes, as well as in our products. Our actions are designed to achieve the highest levels of quality. This is our corporate policy and the pillar of our success. SolarWorld quality means our solar modules are very reliable, which is seen as a major selling point by customers who know to only invest in the best solar arrays. A solar array is just like any other investment: you have to invest in quality if you want guaranteed returns.
SolarWorld quality means: everything comes from a single source. From the source material silicon, to the production of wafers and solar cells, to solar modules and custom-made system kits, we cover all stages of the value chain. This is one of the secrets behind our integrated quality assurance.

We rely on German quality standards and a coherent quality system: a thorough quality test is conducted after every single manufacturing step and at all levels of production. Before leaving the factory, each and every one of our solar modules is carefully inspected.

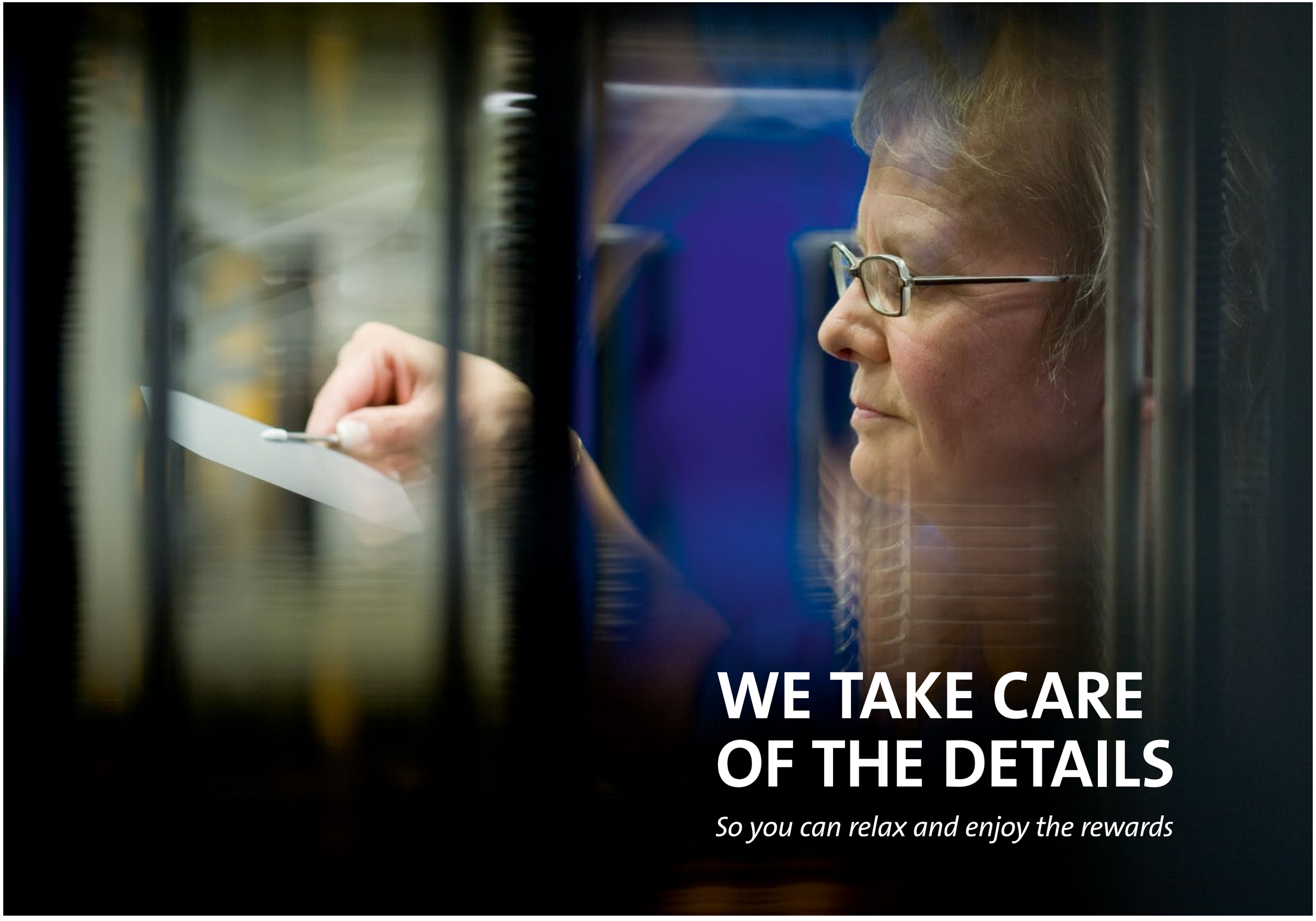
SolarWorld quality means: we always take the decisive step forward. In our module testing laboratories, products and materials undergo meticulous and detailed inspections that actually exceed international standards. Every single test helps improve the quality of our solar modules. This ensures that only first-class products leave our factories.

We combine expertise and passion to produce the highest level of quality in Germany and improve the quality and efficiency of our products every day. All sites, departments and SolarWorld AG employees are totally committed to this policy.

Our customers reap the benefits of SolarWorld quality with excellent yields, long-lasting product efficiency and therefore safe long-term investments.

Sunny regards,

**Dr.-Ing. E. h. Frank Asbeck**
SolarWorld Chairman and CEO


WE TAKE CARE
OF THE DETAILS
So you can relax and enjoy the rewards

# *We take care of the details*
## So you can relax and enjoy the rewards

By the time our solar modules are installed on your roof and begin turning solar energy into clean electricity, they have a long and arduous journey behind them. This is because we tolerate zero errors in ensuring the highest level of quality.

Our corporate policy of integrated quality assurance not only encompasses uniform and stringent material testing, but also end-to-end, ongoing production process monitoring. Materials undergo regular visual and operational inspections before passing through what we refer to as 'quality gates'.

### *SOLARWORLD QUALITY SYSTEM*

**PRODUCT MANAGEMENT**
- Benchmarking
- Market analysis
- Product design
- Material certification
- Failure mode and effects analysis

**RESEARCH & DEVELOPMENT**
- Sample inspection
- Long-term test
- Material qualification
- Climate chamber and field tests

**SUPPLIER MANAGEMENT**
- Selection
- Assessment/performance
- Quality assurance agreement
- Audits
- Incoming goods inspection

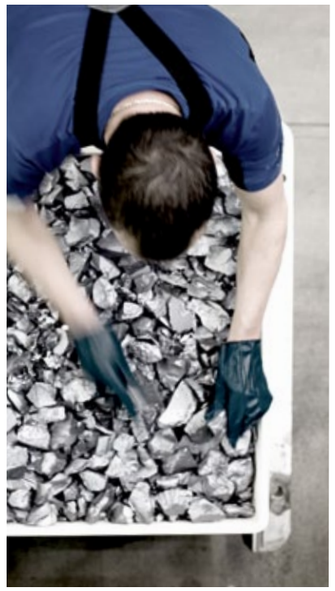
**PRODUCTION**
- **QA** – Quality Assurance
- **TPM** – Teamwork Production Management
- **IGI** – Incoming Goods Inspection
- **Six Sigma** – Process optimization
- **SPC** – Statistical Process Control

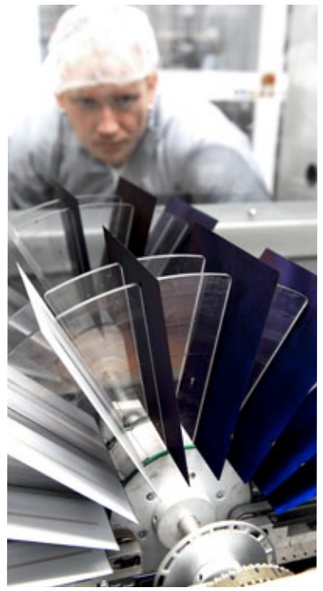
**VALUE CHAIN**

Silicon → Wafer → Cell → Solar module

The quality standards that we demand for the materials used in our products are extremely high. All our suppliers have to undergo a stringent selection procedure. We have a quality assurance agreement with every SolarWorld supplier that defines the material properties that have to be fulfilled. By signing this agreement, our suppliers undertake to provide documented proof with regard to manufacturing quality and adherence to environmental protection regulations.

*From left to right: Silicon in a mold I ontrol of cell production I Quality assurance*





## *Keen eyes*

**Incoming goods inspection**

All module components that arrive at our production plants are subjected to the sharp-eyed inspection of experienced technicians. Only high quality and flawless materials are allowed to enter the production cycle. Before they are processed any further, SolarWorld solar cells are checked for possible damage. Particular attention is given to materials designed to protect the solar panel from wind and weather such as safety glass and back sheets.

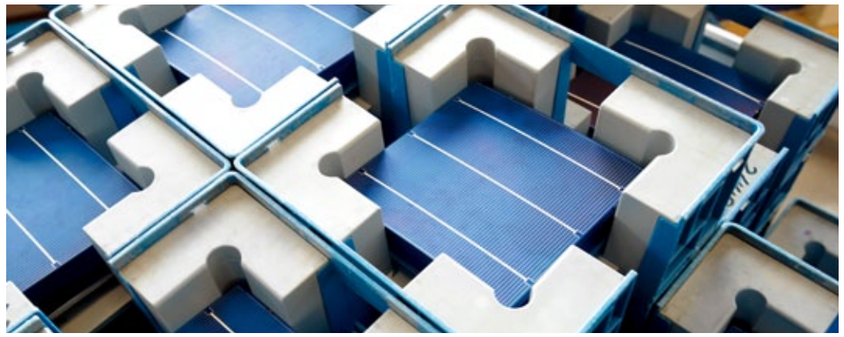
### *SAFETY GLASS*

The geometric properties of safety glass, which includes warping, perpendicularity, dimensions and edge finish, undergo careful visual inspection. Any glass found to have crystalline inclusions, bubbles or edge damage is removed. Material properties and tolerances are precisely defined in quality assurance agreements and must be adhered to. Materials that are not subject to such agreements are not allowed to continue into production. We have good reason for upholding these extremely high quality standards – our solar modules need to withstand the heavy winter snow loads that can occur in mountainous regions. Therefore, we use relatively thick, low iron glass and pay particular attention to high mechanical strength. A special anti-reflection coating ensures optimization of both efficiency and yield. As a result, our modules can easily deal with extreme loads.

### *BACK SHEET*

The back sheets of our solar modules can withstand extreme weather conditions and UV irradiation. They are designed to endure environmental influences and protect the module for many years. We also see to it that the back sheet is perfectly adapted to the materials of the other components. There is no better way of ensuring the durability of our modules.

*From left to right:* Delivery of solar cells I String production



## Long-lasting chains

**Solar cells**

Before being soldered into strings, each solar cell is inspected for possible damage and tested for specific tension and efficiency. In addition to visual inspections, cells are also classified according to color and power level and then connected to create chains of cells called strings. The front of one cell is connected via three soldering strips to the back of the adjacent cell (3-busbar technology) in an automated process.

Flawless cell soldering is crucial for the quality of our solar modules. We thus monitor the soldering process with automated camera systems and additionally perform a regular peel test to check existing soldered joints. We use this test to monitor the soldering quality of the string production. With additional visual inspection of strings we also ensure there are no errors in cell print, possible cracks in the cells, mechanical damages or color deviations. Only when we are certain that all cell connections are correctly soldered and our quality standards have been met do we allow the strings to continue to the next stage of production – the laminate layup.

## A safe distance

**Solar cell matrix**

The laminate layup consists of the solar glass, two ethylene-vinyl acetate (EVA) sheets, the solar cell matrix and the back sheet all sandwiched together. The laminate layup is carefully examined for cell cracks and possible contact interruptions using electroluminescence measurements. Our experts also check for even spacing between cell chains and inspect the laminate for foreign material. Only laminates in perfect condition are approved for further processing.

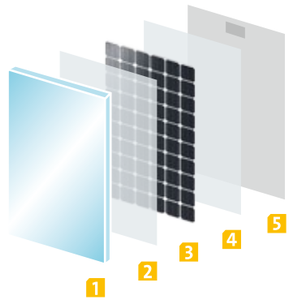
Furthermore we have optimized the design of our solar modules so that relatively large space remains between the solar cells and the frame. This safety clearance helps prevent moss from developing on the glass surface and allows us to guarantee performance and increase the dielectric strength of our solar modules.

## Fixed matrix

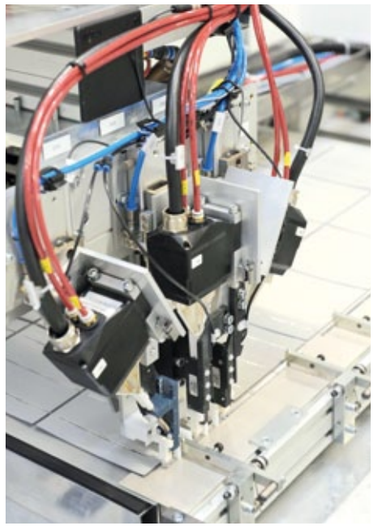
**Laminator**

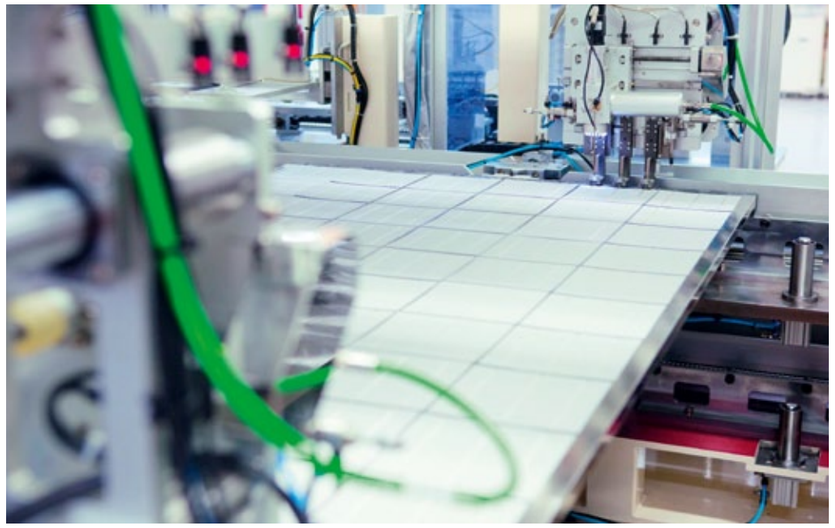
In the laminator – a huge vacuum oven – the laminate layup is bonded at high temperatures to a weather and shock resistant unit. The resulting laminates are carefully examined by our experienced module specialists. Only laminates whose front, back and edges are in perfect condition will pass to the next processing stage.

Solar modules must withstand the forces of wind and weather, which is why we specialize in long-life solar modules. We check for stable and resilient bonding between the individual laminate components with regular peel tests. A strong and stable matrix prevents the separation of individual unit components from each other.




1. Tempered one-pane safety glass
2. Ethylene vinyl acetate (EVA)
3. Solar cell matrix
4. Ethylene vinyl acetate (EVA)
5. Back sheet





*Soldering the string cells*

Junction box I Aluminum frame and corner keys


## Connection guaranteed

**Junction box**

We have developed an extremely safe and robust junction box for our solar modules. Efficient heat dissipation due to the compact design ensures that an ideal temperature is maintained. The junction boxes are automatically attached to the back of the modules and are then welded to contacts to establish electrical connections. We consciously do more than simply solder the box's connections in the usual way. Our fused connections ensure optimum safety at peak mechanical and thermal loads. In the final step, the junction boxes are filled with high quality silicone to help protect the contacts against corrosion and mechanical loads. Both the function of the patented junction boxes and the quality of the silicone are systematically tested for perfection. This ensures that only safe solar modules with perfect junction boxes leave the SolarWorld production lines.

## Joined for life

**Frames**

The laminates are transported to the fully automated framing station where they are assembled together with an aluminum frame and matching corner keys. The frames of the solar modules are filled with two-component silicone, the quality of which is continually monitored by our experts. They not only check the mixture for the correct component ratios, but also measure the hardness of the silicon 24 hours later to ensure an extremely stable laminate-frame connection.

This high quality bonding gives our solar modules above average stability. High loads – such as from avalanching snow – are easily withstood. And our impermeable silicone sealing provides our solar modules with exceptional long-term protection against moisture – regardless of the weather conditions.

## Proven performance

**Classification**

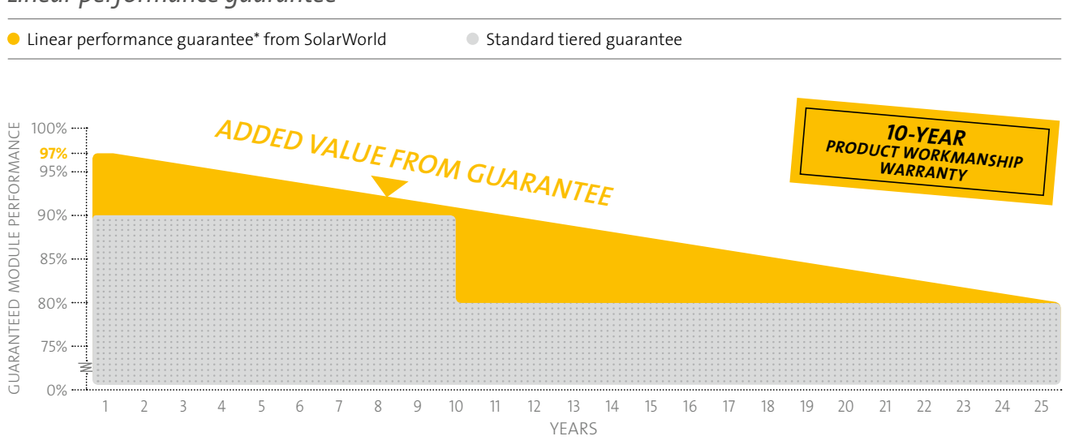
After framing, our solar modules are then subjected to one of our most important performance tests. The performance of every single SolarWorld module is measured in a flasher. Under standard test conditions (STC), the unit is flashed with 1,000 W/m² at 25°C, an irradiation angle of 90 degrees and 1.5 AM light spectrum. Decisive for our customers is the recorded current-voltage characteristic, which gives the actual performance of the solar module. The electrical safety of the solar module is also tested in the flasher.

After being measured, our solar modules are then categorized according to performance. We only deliver solar modules with at least nominal power performance or higher. We call this process ‘Plus Sorting’ and consider it to be synonymous with the highest level of efficiency.

We put a lot of effort into making sure our flasher is precise. Accurate measurement is crucial since it determines the nominal performance of each individual solar module. Our process control includes regularly monitoring and calibrating the flasher using reference modules from the Fraunhofer Institute for Solar Energy Systems (ISE). TUV Rheinland also tests flasher accuracy in its annual ‘Power Controlled’ certification procedure. In addition to this, every month the SolarWorld AG module testing lab and the TUV Rheinland test random samples from the solar module production for performance and quality.

You cannot get better than that! We are so sure of the outstanding quality of our solar modules that we are prepared to give customers a 25-year linear performance guarantee, as well as a 10-year product workmanship warranty.

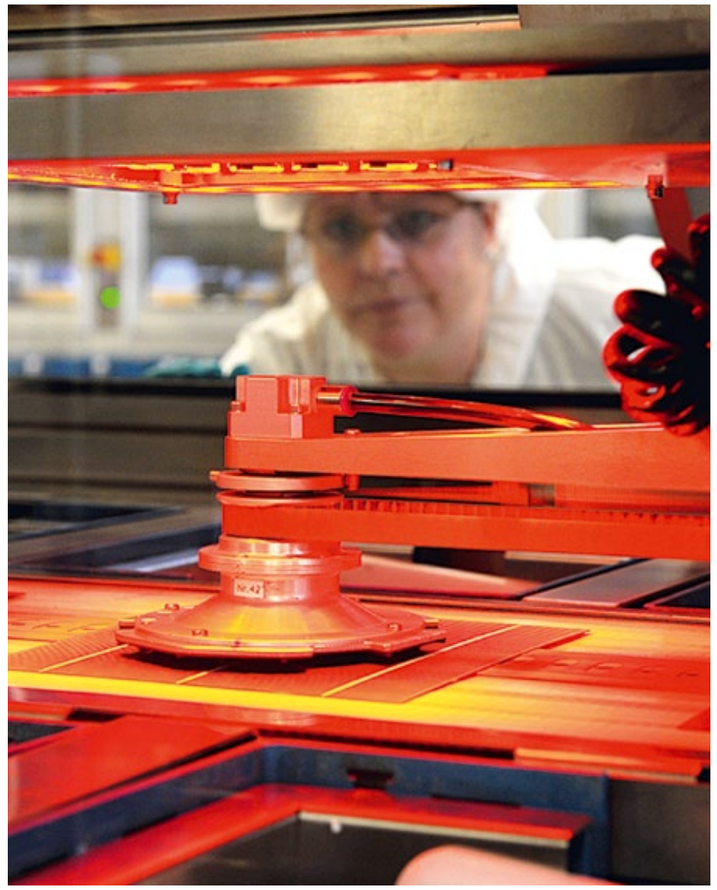
*Linear performance guarantee**




* in accordance with the applicable SolarWorld service certificate upon purchase | www.solarworld.de/module/service-certificate

# WE DO NOT JUST PERFORM, WE GUARANTEE PERFORMANCE

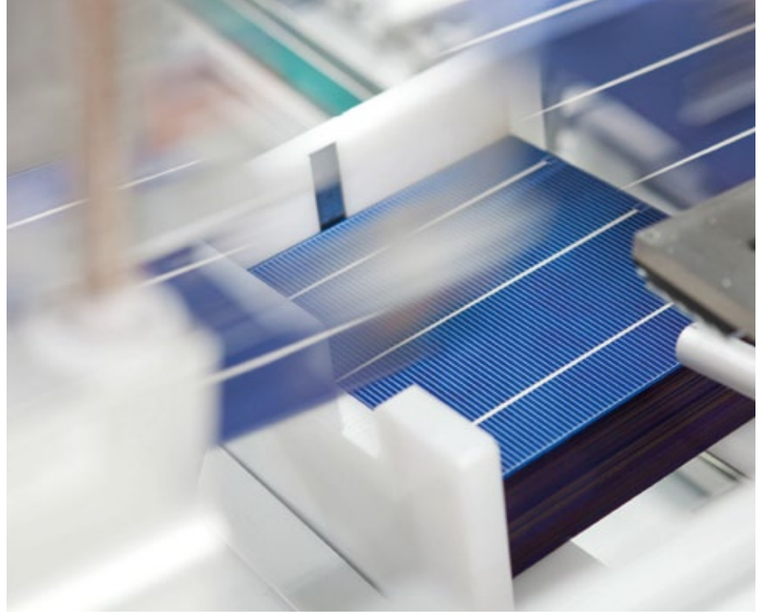
*So your investment works out*



## Rigorous selection

We never take it easy at the end of the production process and insist on following the strictest quality controls. A final electroluminescence measurement is carried out on every single solar module and those that pass are subject to a final visual check by our experienced technicians. Only then can it begin its journey to the customer.

But we do not stop there – outgoing goods control also carry out random product checks. We measure and recheck the lengths and widths of the solar modules. Furthermore random checks are carried out to ensure perfect insulation. Selected solar modules undergo further climate chamber tests and performance controls to check materials reliability.



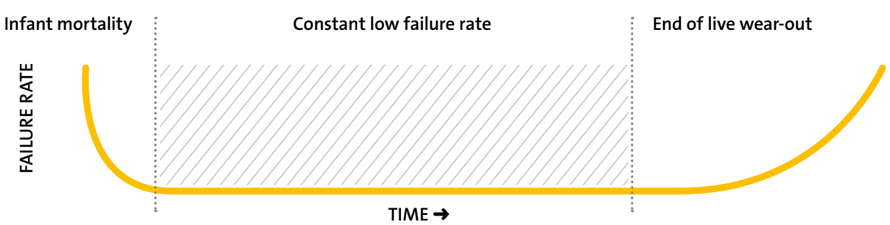
## Life-extending measures

What actually happens to installed solar modules during their life cycle? How does their ability to perform change over time? Our specialists carry out long-term tests to find the answers to these and similar questions. The lessons they learn are incorporated into product development so that we can continually improve the durability, safety and efficiency of our products.

The entire life cycle of a solar module is simulated in a long-term test in a climate chamber. The International Electrotechnical Commission (IEC) issues internationally valid standards for solar modules and specifies the different climate chamber tests to be conducted.

### IEC tests

We carry out many more IEC tests than required by international standards. These tests help us improve the quality of our products by providing valuable information on the behavior of our solar modules. In the first test cycle, we detect early failures, which may be the result of construction, production or material flaws. These tests are carried out during the product development stage and hence before the product enter the market. Additional test cycles simulate other potential failures, such as random errors or aging due to material fatigue. By using this data we can extend the life of our products, improve their properties and reduce error rates. IEC tests are regularly performed on random solar modules taken from our production sites. These are then examined and tested for performance after each test cycle.




WE DO ALL
POSSIBLE TESTS
To save you from trial and error

# *We do all possible tests*
## To save you from trial and error

A solar module must be able to withstand a great deal. It is exposed to extreme conditions over a lot of years, including strong sunshine, biting frost, heavy storms and high snow loads. It is precisely this ability, resistance and power of endurance that we expect of our solar modules. We take materials and solar modules to their limits – so that our customers can be sure of best returns.

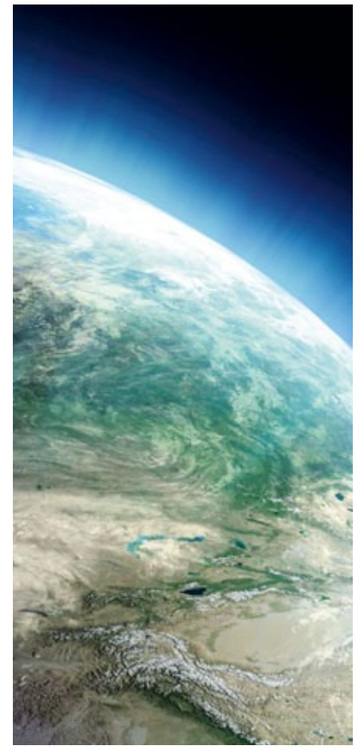
Our own 'internal TUV' is our testing lab in the German town of Freiberg in Saxony. This is where we literally test everything that can possibly be tested. It is the first industrial laboratory in Germany to be approved by the German Association for Electrical, Electronic and Information Technologies (VDE) in accordance with DIN EN ISO/IEC 17025. This means that the lab's quality management and way of working satisfy the rigorous standards of independent international testing and calibration laboratories.

Our specialists thoroughly test materials, prototypes and solar modules. They conduct tests to determine performance, climate chamber tests, electrical and mechanical tests, as well as UV tests in accordance with European and US standards. But we aim to do more than simply fulfill standards. In innovative test arrangements and facilities – some of which have actually been developed in the testing lab – solar modules are tested for hardness and in a much more extensive manner than required by international standards. In the testing lab, our solar modules undergo supplementary programs where standard tests are sometimes repeated anywhere from three to six times. All our solar modules must satisfy SolarWorld AG's strict performance and safety criteria, without exception. In this way we ensure the high quality of SolarWorld products for customers throughout the world.

The actual conditions under which our solar modules operate are decisive for our tests and quality standards. The aim of our module testing lab is to subject solar modules to the same exacting demands placed on them by exposure to sun, wind and weather.

*Hemispheric lighting test*

*Hemispheric lighting test*



***From left to bottom right:*** *Module testing lab I UV light aging I Inclined plane test*

## *Hemispheric lighting test*

Our research team in the module testing lab has come up with the hemispheric lighting test to examine the behavior of our solar modules under conditions as authentic as possible. It allows us to simulate daily and annually changing light conditions, including related temperature variations.

The sun's trajectory is simulated by a system of horizontal and elevation angles in the lighting test stand. The test replicates different environmental factors, such as temperature, changing wind conditions, the angle of solar radiation, light spectra and direct and diffuse irradiation. An optical measuring unit known as an integrating photometer allows us to measure solar module capacity by examining the simulated light conditions in more detail.

Our evaluation of the lighting test data ensures that our solar modules provide the required performance under varying light and temperature conditions.

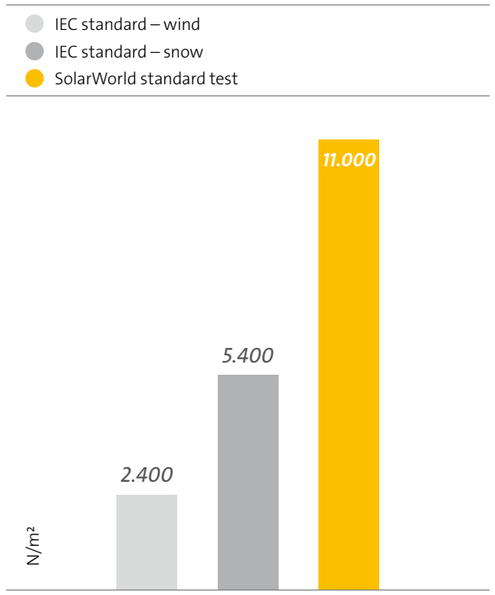
*From left to right:* Climate chamber I Mechanical load test


# Mechanical load test

In severe winter and at higher altitudes, solar modules are exposed to high wind pressure, wind suction and snow loads. Our solar modules must be capable of withstanding such extreme conditions.

A mechanical load test, in which we simulate the pressure and suction forces affecting solar modules, ensures they can do just that. Alternating pressure and suction is applied up to 1.2 million times via suction pads attached to the upper surface of the solar module. In this stage, which includes both static and dynamic forces, solar modules are tested in far more cycles than required by IEC standards. We test our solar modules with an 11,000 N/m² load, even though the IEC standard requires 5,400 N/m². Our solar modules are therefore always tested under real conditions to ensure outstanding performance in the real world.

*Maximum area load in N/m²*




# Inclined plane test

Solar modules are usually installed at the same angle of the roof rather than horizontally. Snow and ice therefore slide down and apply pressure on the lower part of the module frame.

Normal mechanical load tests examine the effect of an evenly distributed snow load on a horizontally installed solar module. To replicate real-world conditions, our module testing lab developed the inclined plane test, in which a load of up to one metric ton is placed on a solar module installed at a tilt. Due to an angle design, the pressure is concentrated on the lower edge of the module.

It was found that our solar modules withstood the inclined plane test with no adverse effects on either the safety glass or the frame. With their outstanding stability and secure attachment, these solar modules are also well suited for rooftops with heavy snow loads.


*From left to right:* Reverse bending test I Inclined plane test

UV light aging test

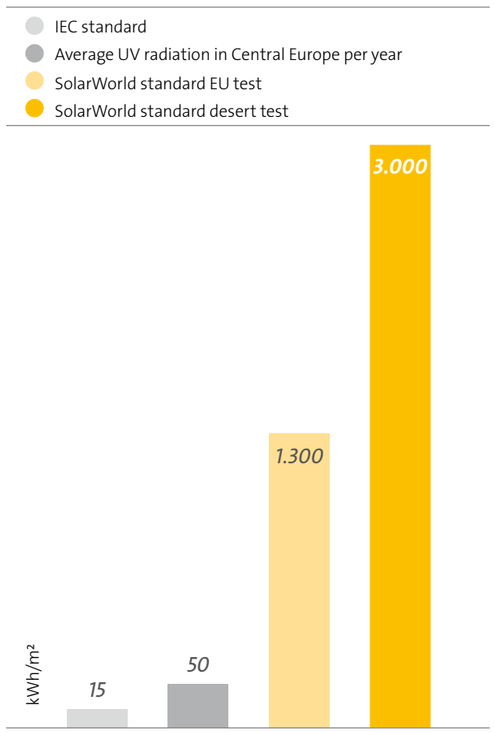
# UV light aging test

Roof and ground-mounted solar modules are exposed to many years of intense UV radiation. UV endurance is therefore a must for solar modules. We have developed a test specifically designed to analyze the UV endurance level of our solar modules.

We test the UV resistance of our solar modules at 60°C in the wavelength range 280 to 400 nanometers. The test simulates 25 years of UV radiation, which is the equivalent of 1,300 kWh/m². By comparison, the IEC test standard requires a cumulative UV dose of 15 kWh/m², despite the annual UV radiation in Central Europe alone being 50 kWh/m².

Our solar modules easily withstand the rigorous UV aging test, which clearly demonstrates both durability and quality of the product materials. The excellent result of our solar modules in the UV endurance test not only qualifies them for use in Europe, but also in countries with extremely high levels of UV radiation. We simulate desert area conditions by testing up to 3,000 kWh/m².

*UV aging test*

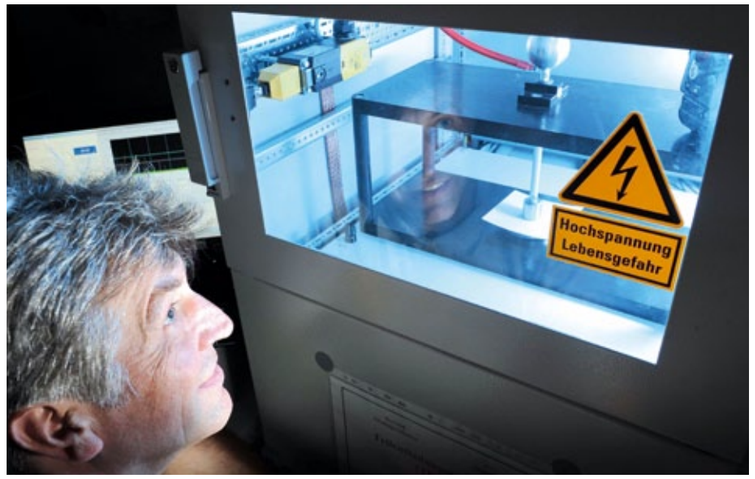



# Ground-mounted tests

Of course we also test the weathering resistance of our solar modules in the open and not just under laboratory conditions. By installing solar modules in ground-mounted test areas in different climate zones, we expose them to real wind and weather conditions. We observe the solar modules and test them for performance and insulation ability over varying periods of time. The information gained from these tests is then incorporated into our continuous efforts to improve solar modules.

# Peel tests

Over time, weather can adversely affect the reliability of both sheet-to-glass and inter-sheet connections. Better material and processing therefore also means better solar module reliability. With the aid of a peel test we are able to analyze the quality of our sheets and their interconnections. This involves measuring the force required to disconnect the sheet. The test confirms the first-rate quality of the materials in our solar modules and is a further factor in the long life of our products.




Partial discharge test I Electrical insulation test

# Electrical tests

An important aspect of our solar modules is electrical safety. In electrical tests we ensure the proper insulation of our solar modules. Testing is carried out on both wet and dry conditions. We inspect the solar modules after mechanical loads have been applied, as well as following simulation of different temperature cycles. In addition, we also apply a partial discharge test to determine the reaction to high voltages. You can trust in the safety of our solar modules!

*From left to right:* Electroluminescence measurements I Thermography measurements

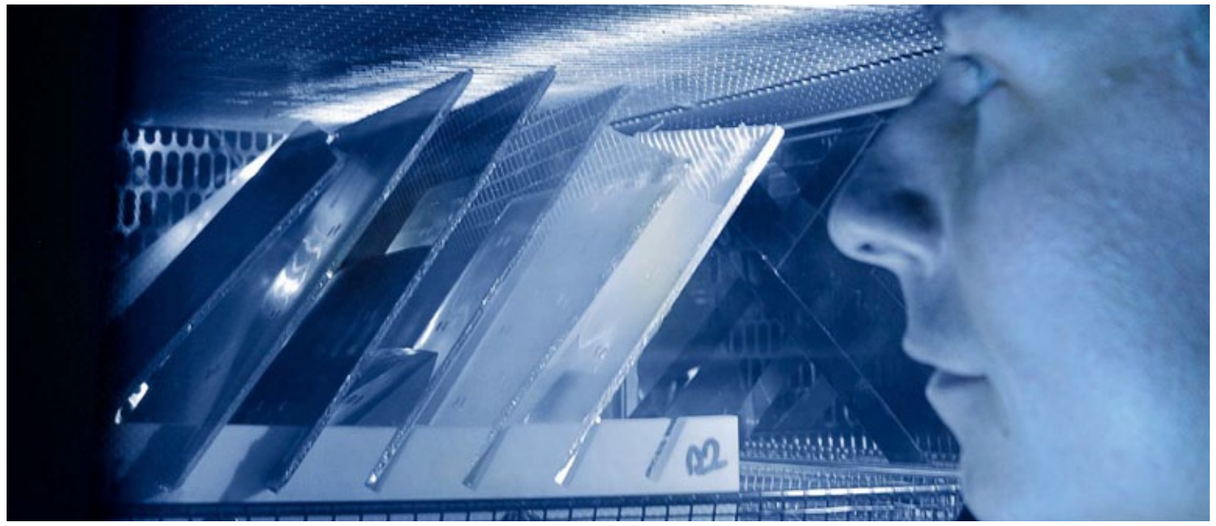
## Hotspot test

Cells and solar modules sometimes have defects such as micro cracks or contact breaks that are undetectable, even by the trained eyes of our experts. However, an electroluminescence measurement quickly brings them to light. Our solar modules are continuously tested with this high-resolution diagnostic technology, which is why we can guarantee that only intact and fully functional solar modules leave our premises.

For an electroluminescence measurement, the solar module is supplied with current and operated as a luminous diode while a camera films the light that is generated. Damaged cell areas luminesce less than other areas and appear darker. A further diagnostic image system we use is thermography. Based on a thermal image made by a thermography camera, our staff is able to detect intermediate resistance, thermal zones or conduction loss in solar cells, contacts and junction box.

We also use a thermography camera to examine the solar modules for what are known as hotspots, which can damage the module over the long term. Hotspots can occur when solar module cells that lie in the shadow of a tree or chimney heat up due to residual electricity. These measurements ensure customers are supplied with best SolarWorld quality.

*Temperature shock test*



## Climate chamber tests

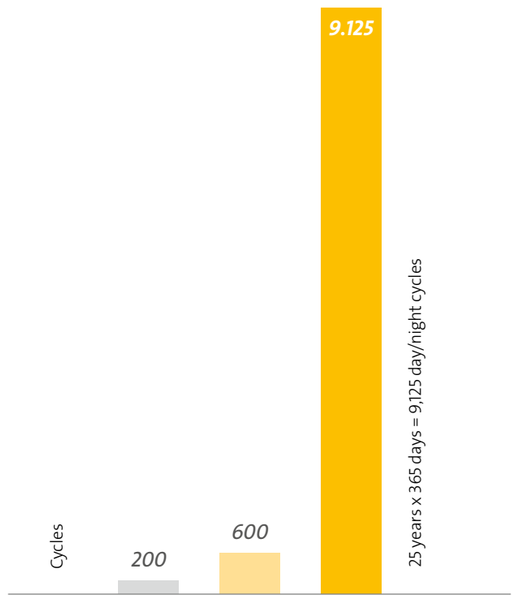
The weathering resistance of our solar modules is tested at length, not only with the temperature change test, but also with the humidity-freeze and damp-heat tests. In the process, they undergo a great many more tests than IEC standards require. In the temperature change test alone we simulate a standard 600 day and night cycles, instead of the 200 prescribed by the IEC.

With the temperature shock test we have developed a highly accelerated life cycle test that simulates a workload of 25 years. The test involves exposing our solar modules to -40°C for at least 30 minutes. In a second step, within the following 10 seconds, the solar modules are put in an oven preheated to +85°C for a further 30 minutes. We make this temperature change a total of 9,125 times, thereby exposing our solar modules to an accelerated aging process in a short amount of time. The cycle is comparable to a workload of 25 years.

Test results confirm that our solar modules are outstanding and perfectly suited for use under extreme climate conditions. And the 25-year linear performance guarantee has been thoroughly checked and secured.

### *Temperature cycling tests*

- IEC standard: -40 to +85°C (200 cycles)
- SolarWorld temperature cycling test: -40 to +85°C (600 cycles)
- SolarWorld temperature shock test: -40 to +85°C (9,125 cycles)



# Module breakage test and hail impact tests

From time to time, heavy or hard objects such as hailstones fall onto roofs and, naturally, roof-mounted solar modules must be capable of withstanding them. To make sure they are stable and break-resistant, we subject our solar modules to the most brutal tests we can come up with.

In the hail impact test, we replicate a natural hailstorm by dropping a 500-gram, 25-millimeter diameter steel ball onto the solar module from a height of four meters. This is repeated up to 20 times in the same place and on at least eleven different points of impact. The IEC only specifies a standard weight of 7.53 grams per steel ball.

We also simulate the mechanical load of objects hitting a solar module. In this case, we drop a 45-kilogram lead-filled sack from a height of 1.22 meters onto the middle of a vertically positioned solar module between one and three times. The test is considered passed if the solar glass does not break or the fracture pattern meets certain criteria.

*From left to right:* Hail impact test I Module breakage test

## We will also throw in a few more certifications, just for you

The high quality requirements we demand of our solar modules are the basis for everything we do, from inspecting incoming goods to monitoring manufacturing processes and testing units in the module testing lab. But that is not enough for us. We go the extra mile and have our solar modules tested and certified by independent testing institutes.

# ‘Power Controlled’ by TUV Rheinland

We never make promises we cannot keep, which is the reason why SolarWorld is one of the few manufacturers to have been awarded the ‘Power Controlled’ certificate of TUV Rheinland. The ‘Power Controlled’ inspection mark guarantees that the power ratings specified for our solar modules are maintained and regularly monitored by an independent test provider. Our solar modules therefore supply the amount of power – or more – we promised they would.

Every year, TUV Rheinland monitors and calibrates the luminous intensity, spectrum and homogeneity of the flasher in the SolarWorld production. The productive capacity of the solar modules is measured with the flasher. For consumers and investors of SolarWorld modules, proven power production means that investment and projected yields are secure.

According to external and independent tests by TUV Rheinland, the performance of our solar modules exhibits a mere two percent measuring tolerance. No other manufacturer can give such an exact value. This means, our customers can be sure of reliable solar module system performance, and therefore also of their effective yield.

# Ammonia resistance

Our solar modules are ideally suited for long-term use in agriculture. The German Agricultural Society (Deutsche Landwirtschafts-Gesellschaft e.V., DLG) and TUV Rheinland inspection marks attest to this. DLG laboratory tests are being conducted to determine whether a solar module can withstand the effects of ammonia in barn air over a 20-year period. The test simulates the temperature, humidity and ammonia concentrations inherent in agricultural conditions. Our solar modules have proven to be highly resistant to ammonia.

# Salt spray resistance

It has been shown that our solar modules are not affected by salty air. The solar modules successfully completed and fulfilled all the requirements of the DIN EN 61701 salt spray test. They are therefore ideally suited for installation in maritime climates. Obviously, this also means they can withstand the salty air caused by using road salt in winter.

## STANDARDS AND DIRECTIVES

**SolarWorld AG is certified according to:**

- ISO 9001: Quality management systems
- ISO 14001: Environment management systems
- BS OHSAS 18001: Occupational health and safety management systems

**Our products are certified according to:**

- DIN 4102-1: Low flammability (category B1)
- DIN EN 61701: Salt mist corrosion testing of photovoltaic (PV) modules
- DIN EN 60068-2-60: Ammonia resistance
- DIN EN 61215: Crystalline silicon terrestrial photovoltaic (PV) modules – Design qualification and type approval
- DIN EN 61730: Photovoltaic (PV) module safety qualification – Part 1: Requirements for construction
- UL 1703: Flat-plate photovoltaic modules

**Our products are manufactured in accordance with the current standards and directives:**

- DIN EN 60904 standard series: Photovoltaic devices
- DIN 18800: Steel structures
- DIN 4113 – Eurocode 9: Aluminum constructions under predominantly static loading
- DIN 1055 – Eurocode 1: Actions on structures

Quality modules made in Germany

www.tuv.com TÜVRheinland ID: 0000022848 Power controlled

ÖKO-TEST LIFE WORTH LIVING SolarWorld Sunmodule Plus SW 225 poly excellent issue 05/2010

## SUSTAINABILITY

**Sustainability in manufacturing, of products and in management are prime concerns of the SolarWorld AG.**

- We adhere to the strict environmental and occupational health and safety standards ISO 9001, ISO 14001 and OHSAS 18001.
- We are continually lowering solar module production energy consumption along the entire value chain.
- We assume corporate responsibility and are a member of the United Nations Global Compact.
- With our Solar2World projects we are actively involved in ensuring equal access to clean solar energy throughout the world.

## ENERGY PAYBACK TIMES

We are continually lowering solar module production energy consumption along the entire value chain. This involves a regular life cycle analysis and calculation of the period of time a solar module requires to generate as much energy as was used to manufacture it. Our environmentally friendly manufacturing processes facilitate short energy payback times and reduced $CO_2$ emissions.

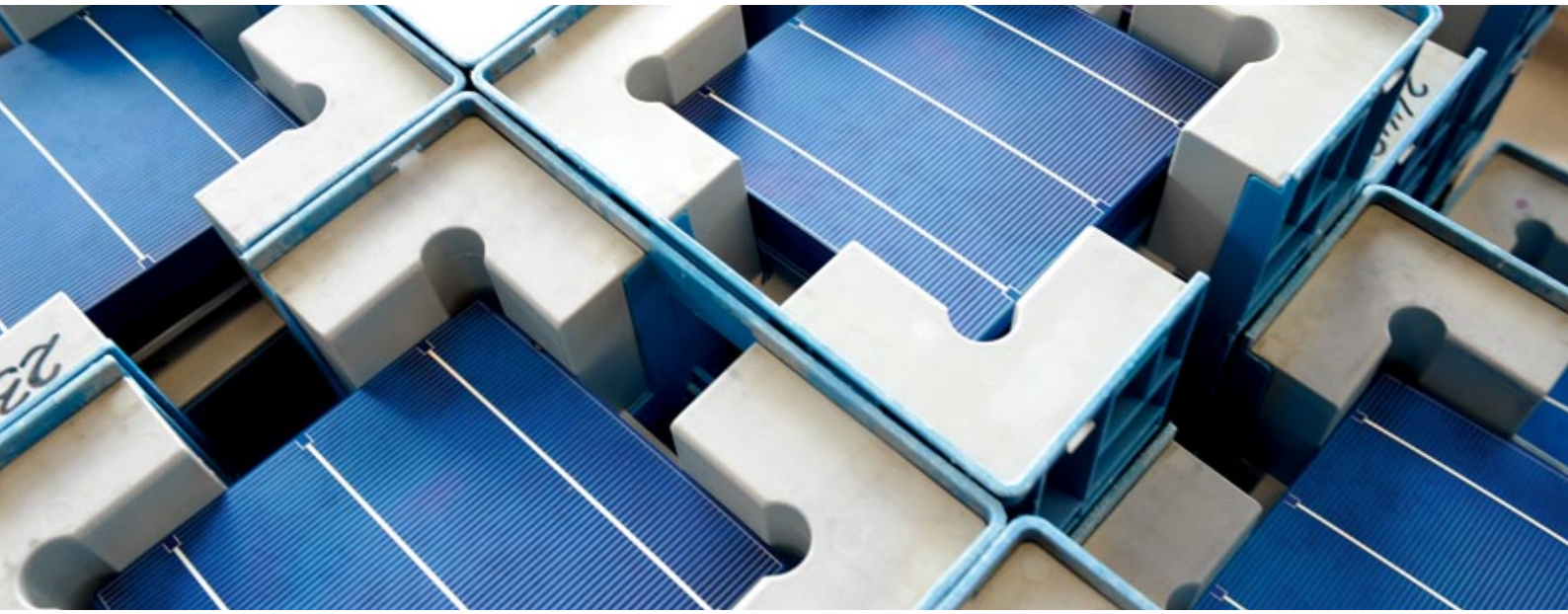
- Germany (Bonn): 1.2 years
- Bulgaria (Sofia): 0.9 years
- Spain (Madrid): 0.8 years
- USA (San Francisco): 0.6 years

# *The advantage of quality*

To ensure the best possible quality we take a holistic approach that not only encompasses solar modules, but the entire solar power system as well. Purchasing a solar power system is just like any other investment – only those who invest in quality can expect safe returns.

## OUR SOLAR PRODUCTS AND APPLICATIONS:

| | |
|---|---|
| *Sunmodule®* | Solar modules for grid-connected or off-grid solar systems. |
| *Sunkits®* | The "all-inclusive package" by professionals for professionals. Our Sunkits® are perfectly matched with components from a single source. |
| *Sundeck ®* | The perfect combination of aesthetics and efficiency. Sundeck® provides an elegant and customized way to integrate your solar power system onto your roof. |
| *SunCarport®* | Truly multitalented: The SolarWorld SunCarport® not only protects your car in any wind or weather, but it also creates an additional surface area for producing clean solar energy. The SunShed® also features a powerful solar roof and offers protection for e-bikes, scooters or garden equipment. |
| *Sunfix®plus* | Whether on a flat roof or a pitched roof, the Sunfix®plus system is the ideal mounting solution for our solar modules. |
| *SunPac®* | An innovative system that stores the solar power from your roof and makes it available whenever you need it. |



# *Find out more*

Do you have any questions about SolarWorld's quality standards or individual products? Then don't hesitate to contact us. We will gladly provide you with additional information and show you exactly how SolarWorld can prepare you for the solar future today.

***SIMPLY CALL US OR SEND US AN EMAIL:***

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SOLARWORLD

**We turn sunlight into power.**