THE NEW VALUE FRONTIER

KYOCERA

WE CARE! SINCE 1975.

NEW!
5 YEARS
PRODUCT WARRANTY
KYOCERA SOLAR

OFFERING TOP QUALITY IS ONE THING.
MAINTAINING IT IS ANOTHER!

KYOCERA SOLAR

We care!

ALWAYS ONE STEP AHEAD

An investment in a photovoltaic system is a sound investment in the future of our planet. Many people have already recognised this and purchased their own PV system – an investment which is already being promoted in many European countries, e.g. by means of feed-in tariffs. This public interest is one of the reasons that the photovoltaic market has grown rapidly in recent years, resulting in a large number of new PV module providers entering this promising market.

Right from the start, Kyocera has been successfully involved in solutions all around the world which provided photovoltaic systems even in difficult situations, for example in settlements off the beaten track of civilisation, or complex large-scale projects. The experience gained in this way is put to the benefit of all customers.

_A STORY OF SUCCESS

More than 30 years of experience in the utilisation of solar energy

By founding Japan Solar Energy Corp. (JSEC) in 1975, Kyocera laid the foundation for successful investigation and utilisation of solar energy.
Just seven years later, we began the world's first mass production of polycrystalline silicon solar cells.
Since then, we have succeeded again and again in improving the efficiency of solar cells and setting new standards in this field.

The technical requirements for utilisation of solar energy mean that nobody can rest on their laurels. The demands placed on photovoltaic installations with regard to cost-effectiveness and service life are becoming higher all the time.

As one of the world's market leaders in the photovoltaic sector, Kyocera considers it a natural obligation to continually observe the strictest quality standards in the manufacture of modules, from the raw materials through to the ready-to-use product.

_INCLUDING A GUARANTEED FUTURE

Kyocera with its headquarters in Kyoto, Japan, is a healthy, future-oriented and globally active conglomerate which in 2009 is celebrating the 50th anniversary of its founding. The company's origins and core competencies are in the field of technical ceramics, also known as fine ceramics. Today, Kyocera is among the world's leading manufacturers in the solar industry. Since its founding 50 years ago, Kyocera has not once recorded a financial loss. Thus, Kyocera makes it possible to establish long-term stable business relationships for project partners and customers alike.

_KYOCERA: KYOTO **CERA**MICS

History: founded in 1959 in Kyoto, Japan
Start of involvement in solar technology: 1975
Employees: around 60,000 at 200 locations worldwide

Company's areas of operation: information and communication technology, environmental protection and quality of life
Services provided: complete network of development, installation and maintenance services

Our factory in Yohkaichi. Since 1980, ingots, wafers ad cells have been produced here and this is also where the R&D is based.

_CONTINUAL INCREASE OF PRODUCTION VOLUME

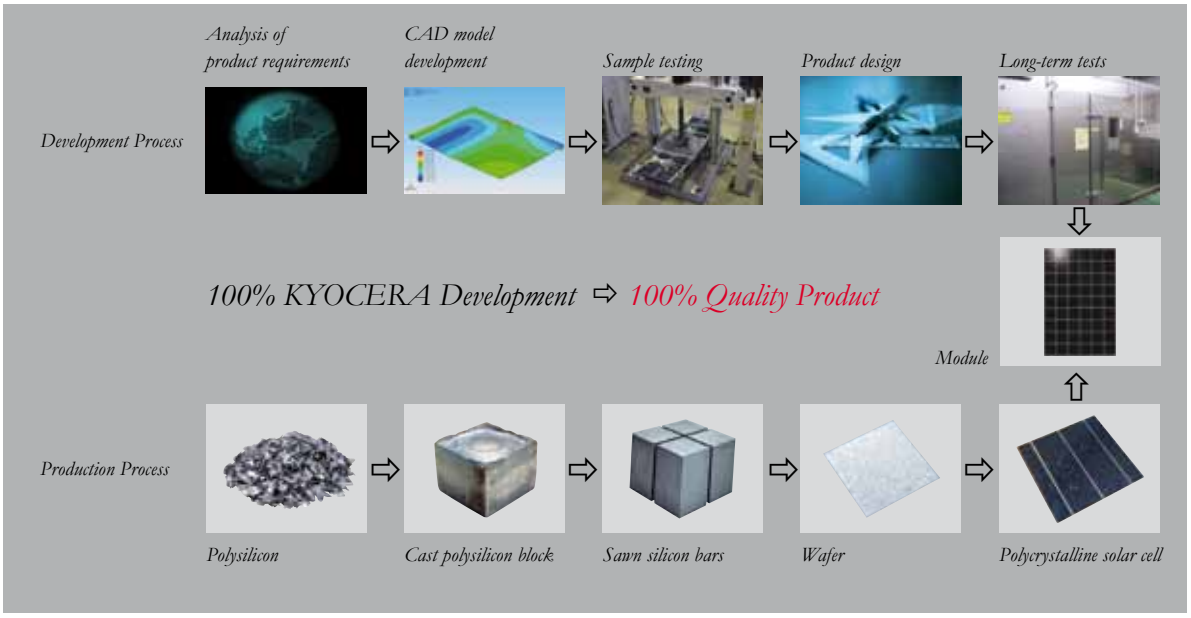
In 2009, Kyocera is starting to build a new production facility for solar cells in Yasu, Japan. This will enable us to increase the solar production volume from today's 300 MW per annum to 650 MW by 2012. The new facility should already begin production in spring 2010, and together with the existing large production facility in Yohkaichi, Japan, will become the centre of solar cell manufacturing. With its production facilities and sales outlets, Kyocera is represented in all key markets, close to its customers.
The production facility for module assembly in Europe is situated in Kadan, in the Czech Republic. Kyocera also plans to increase the production volumes of its module manufacturing operations in Japan, China and Mexico.

WHY KYOCERA?

_INNOVATIVE ADVANCED TECHNOLOGY

With photovoltaic systems from Kyocera, you are always on the cutting edge of technology. This is ensured by our wide-ranging research and innovation programme, which is unrivalled in the industry. Thanks to this programme, we have been able to gradually increase the efficiency of polycrystalline solar cells, to as much as 18.5%.

Kyocera is one of the few companies on the market that carries out all production steps itself, without buying in any semi-finished products. This allows 100% control which, in conjunction with fully automated production processes, results in consistent and above-average product quality.



_CONSISTENT IMPLEMENTATION

When developing modules, Kyocera adheres to the following quality assurance approach:

1. Analysis of product requirements: Visualisation of the individual requirements of each installation and tailored design of the system.

2. CAD model development: In order to identify the specific loads and environmental influences to which the modules are subjected, a sophisticated computer simulation of the installation is developed.

3. Sample testing: Verification of simulation results by means of practical tests.

4. Product design: Development of modules on the basis of the obtained test results.

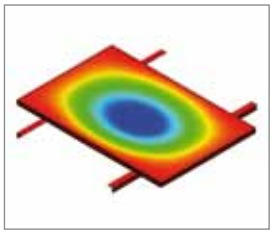
5. Long-term tests: Strict, comprehensive tests are conducted in order to assure quality.

As a matter of course, Kyocera compares new test results with its comprehensive database of previous simulations, so as to check the validity of the tests and to ensure that the results are added to our large pool of existing data and thus increase our all-round expertise.

In the following, the example of loading tests is used to demonstrate how quality assurance works at Kyocera.

_LOADING ANALYSIS

A complete installation is simulated in order to test the modules under maximum load. The results are compared with the data obtained from CAD model development.



The test results show that the modules function faultlessly under the applied loading.

_ADDITIONAL INTERNAL TESTS CONDUCTED BY KYOCERA INCLUDE:

Cyclic loading analysis
Short-term and long-term tests are carried out in order to ensure trouble-free operation over the entire service life of the installation.

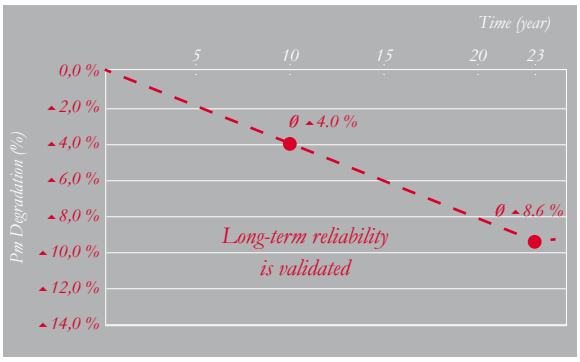
Vibration analysis
The modules' resistance to vibrations (e.g. during transport) is tested.

Temperature analysis
Computer-aided analysis of the effects of temperature deviations on the installed module.

WORLD-CLASS TECHNOLOGY

Kyocera installed a 43 kWp test system in Sakura, Japan, as early as 1984. The PV modules are still performing very well to this day.

The output of the modules in Sakura dropped by just 4% after 10 years. Even after 23 years, this value was just 8.6%. It is remarkable that this value was achieved with the technology and material which were available back then.



Based on its many years of similar experience, Kyocera provides a 20-year performance guarantee on the rated power of its photovoltaic modules.

Kyocera modules generate very high annual energy yields. Each module undergoes a 100% final check with individual measurement of the electrical parameters. Thus, only highly efficient modules with excellent area utilisation leave our factories. Naturally, with every module delivered, we also provide the performance data (flash data) measured in the factory.
So-called "pairing" ensures that at least the rated power is achieved for each box (2 modules, e.g.: 420 W for 2 KD210GH-2PU modules / box).

Kyocera PV modules surpass the international standards and, in particular, meet the requirements of the following:

- TUVdotCOM Service: Internet platform for tested quality and safety, www.tuvdotcom.com.
- IEC 61215 ed. 2, IEC 61730 (basic requirement for the CE label, which is mandatory in Europe) and safety class II.

Kyocera's production facilities are certified as per ISO 9001. The ISO 14001 certification confirms that Kyocera produces in an environmentally sound manner, uses closed (and thus resource-saving) cycles of potential recyclables, and recovers or saves energy to a significant extent.

Moreover, Kyocera is a member of PV CYCLE – an independent association which has set itself the goal of creating a take-back and recycling programme for old modules, in order to implement the industry's promise of comprehensive sustainability.

MORE QUALITY WITH A LONGER SERVICE LIFE

Photovoltaic modules from Kyocera are developed to withstand the most varied of climatic conditions, such as heat or cold.

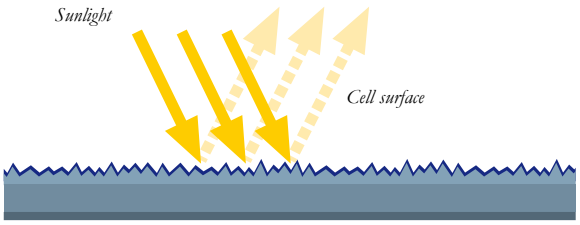

Jungfraujoch, Switzerland

Kyocera modules are designed to cope with harsh weather conditions, e.g. large temperature differences.

_HIGH-PERFORMANCE CELL FROM KYOCERA

The efficiency of modules depends greatly on the level of reflection at the cell surface. It determines how much light reaches the active layer. With the "ion etching process" developed by Kyocera, a pyramid-like roughening of the surface is carried out on the micron-scale, causing multiple reflection of light and thus increasing the yield.

This process, which was developed by Kyocera and lends the cells a dark blue and very homogeneous appearance, is what we call "d.blue".



Functionality

Another decisive success factor is that Kyocera is the first company to use 3-busbar cell technology in mass production. With optimised cell contacting, electrical losses can be significantly reduced in comparison to conventional 2-busbar models and even higher efficiency can be achieved with the same surface area.

_MODULE FRAME

The black anodised aluminium frame with an additional coating ensures extremely high corrosion resistance and a long service life. Together with the dark blue cells, it lends an attractive appearance to the roofs on which it is installed.

The sturdy frame can withstand the harshest of weather conditions. We guarantee a mechanical load capacity of 2,400 N/m² for our modules. In addition, we requested the German Technical Inspection Authority (TÜV) to test this module according to the extended test requirements of IEC 61215 ed. 2 for 5,400 N/m².

Furthermore, our frame is so stably constructed that there is no need for additional bracing on the rear of the module. This leads to weight savings and means that our PV modules are light and easy to install.

The drainage holes in the frame's interior allow our modules to also be used in slotting systems. This prevents blockage of drilled holes by the mounting system.

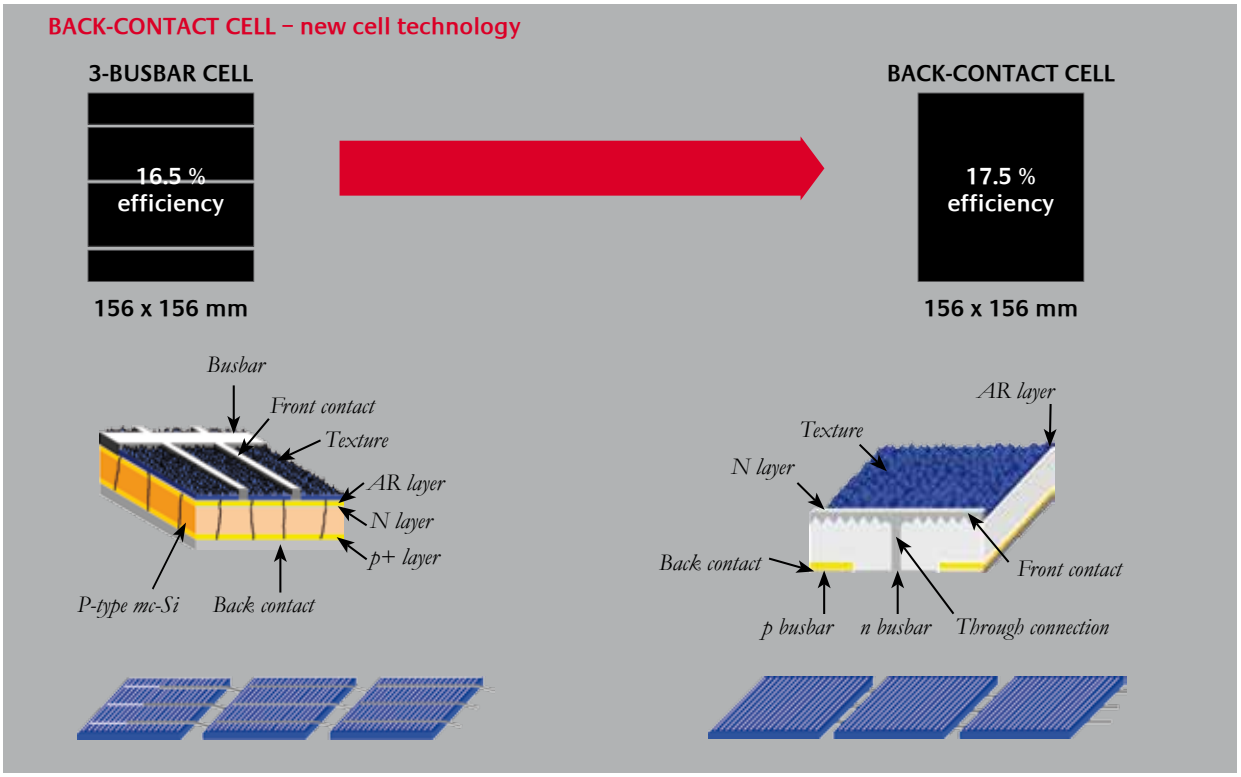
Easy identification of the individual module – without disassembly on the roof – is enabled by the weather-resistant, laser-engraved serial number on the frame.

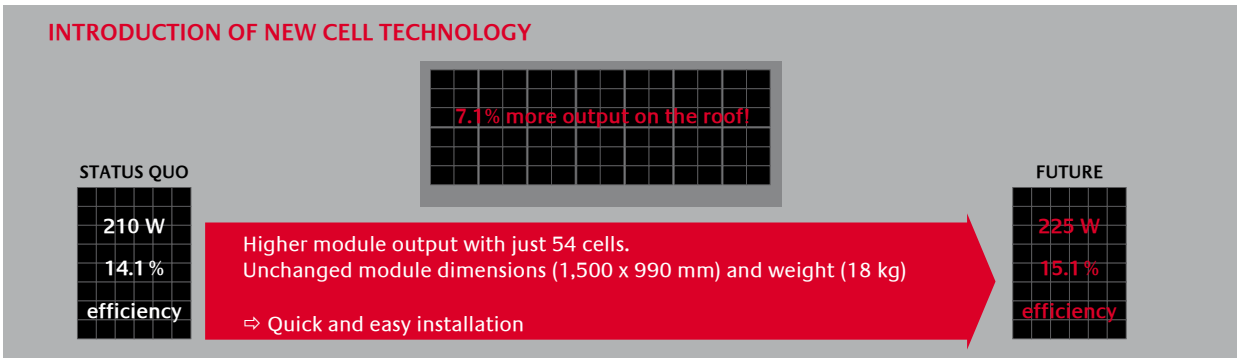
CONSTANTLY REDEFINING FRONTIERS

_BACK-CONTACT CELL

Kyocera's latest development, the so-called back-contact cell, achieves an efficiency of 17.5% by shifting all the electrodes from the surface to the rear of the cell. This enlarges the active cell surface.

While the dimensions remain unchanged, the module efficiency increases to 15.1%, which corresponds to a 7.1% higher output power than our current product KD210GH-2PU. The use of MWT (metal wrap-through) technology allows implementation of all available inverter concepts without special earthing kits. We will soon bring this highly efficient module onto the market.





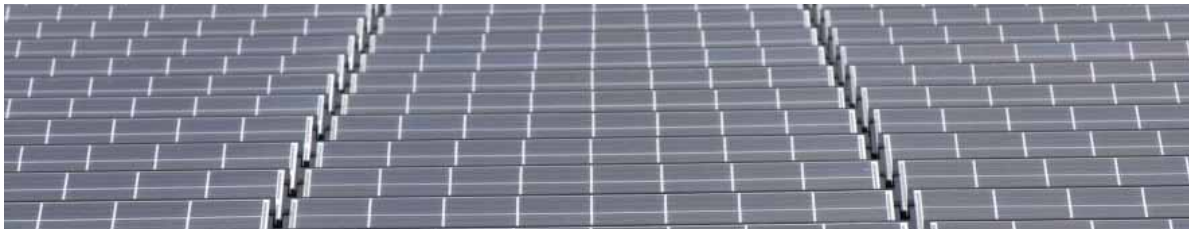
_MEETING THE STRICTEST OF QUALITY REQUIREMENTS

Toyota is one of the world's market leaders in the research and development of modern automotive technology.

Technology and modules from Kyocera meet the strict requirements of Toyota's quality management programme, which is why PV modules from Kyocera are installed in the third generation of the Toyota Prius. The solar-powered ventilation system ventilates the passenger compartment while the vehicle is parked.

TRUST DOESN'T COME FOR FREE. IT HAS TO BE EARNED.

Modules from Kyocera – a good decision



_FINANCIALLY STRONG COMPANY – FOR 50 YEARS
With Kyocera, you can develop long-term stable business relationships. Rating agency Moody's confirms this with its Aa3 rating ("excellent").

_OVER 30 YEARS OF EXPERIENCE WITH SOLAR
Kyocera has played a decisive role in shaping the development of solar technology from the very beginning.

_INNOVATIVE CUTTING-EDGE TECHNOLOGY
Continual further development of cell efficiency to world-record-breaking levels (2006: 18.5%).

_COMPLETE IN-HOUSE MANUFACTURE
100% Kyocera development ⇨ 100% quality product

_EXEMPLARY EFFICIENCY
Kyocera high-performance solar cells with efficiency of over 16% guarantee extremely high annual energy yields from the PV system.

_PRODUCT RELIABILITY AND A LONG SERVICE LIFE
Kyocera long-term tests (e.g. Sakura installation from 1984) demonstrate the PV modules' consistently high quality.

_OUTSTANDING PRODUCTS
German testing institute Stiftung Warentest has confirmed the functional quality of our products.

_COMPREHENSIVE RANGE OF MODULES
Broad product portfolio features modules for highly diverse applications.

_EXCELLENT SERVICE
A comprehensive trained team of engineers and service technicians in Esslingen provides fast, unbureaucratic help with technical issues.

- Advice on design issues
- Advice on location and installation
- Information on new products and processes
- Special support for starting operations
- Joint analysis of faults
- Fast and unbureaucratic help in the event of guarantee claims

_TRAINING
Individual product training increases the level of expertise of installation engineers.

THE NEW VALUE FRONTIER

KYOCERA

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KYOCERA SOLAR

We care!