

Q.CELLS
YIELD SECURITY

- ✓ ANTI PID TECHNOLOGY (APT)
- ✓ HOT-SPOT PROTECT (HSP)
- ✓ TRACEABLE QUALITY (TRA.Q™)

CLAIMING LEADERSHIP MEANS PROVING IT

YOUR SAFE CHOICE FOR SECURE YIELDS

The new Q-Cells solar cells generation

NEW TECHNOLOGY
FOR INCREASED
MODULE OUTPUT!

Q.CELLS

Q-CELLS QUALITY WITH NO COMPROMISES PAYS OFF FOR YOU TOO!

MORE COST-EFFECTIVE THANKS TO EXPERIENCE

Q-Cells is the technology leader in the photovoltaics industry. Founded in 1999, Q-Cells had developed into the world's largest solar cell manufacturer in just a few years. With our comprehensive expertise we have been setting standards in the industry regarding power, reliability, aesthetics and easy processing of the cells for 10 years. What's more, we don't only claim leadership, we prove it with hard facts.

INNOVATION ENSURES QUALITY

As a primary innovation driver in the solar industry, we set the pace for standards in the industry:

- 2004** Introduction of the 6-inch cell standard.
- 2007** Introduction of the 3-busbar layout at cell level.
- 2008** Increase in resilience due to hot-spot free cells thanks to unique hot spot protect (HSP) quality controls.
- 2010** World record efficiencies of thin-film modules and introduction of the first full-square monocrystalline cells.
- 2011** Increase in yield reliability thanks to innovative Anti PID Technology (APT)¹.
- 2011** Enhanced yield security thanks to the unique Traceable Quality (Tra.Q™) laser-marking technology, which guarantees traceability and forgery protection.

Our innovations facilitate the decision to choose Q-Cells solar cells as a choice that pays off.

YOUR SUCCESS IS OUR BENCHMARK

That's why Q-Cells offers comprehensive service including technical training sessions as well as professional support provided by our engineers on site. This allows you to transform our competence into your success.



¹ Leakage currents from the PV module can cause significant yield losses in a phenomenon known as potential-induced degradation (PID) and arise within the first months of operation. Q-Cells prevents any risk of PID right on cell level. APT test conditions: Cells at -600 V against frame, wet module surface, 25 °C, 300 h

**CERTIFIED QUALITY MANAGEMENT ACCORDING TO ISO 9001
+ TESTING METHODOLOGY WITHOUT COMPROMISES
= 100 % RELIABILITY AND SAFETY**



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YIELD SECURITY

- ✓ ANTI PID TECHNOLOGY (APT)
- ✓ HOT-SPOT PROTECT (HSP)
- ✓ TRACEABLE QUALITY (TRA.Q™)

**QUALITY PRODUCTS
+ COMPREHENSIVE ON-SITE SERVICE
= PROFITABLE SOLUTIONS FOR ALL!**



WE OFFER HIGHER AND RELIABLE YIELDS!

THE HIGHEST PERFORMANCE SOLAR CELLS FOR YOUR MODULES

- **NEW!** Reduced serial resistance due to new cell concept with 86 thin fingers and 3-busbar layout: **Increased power on module level.**
- **NEW!** Positive sorting +0.2/-0 %: **Extra output.**

THE MOST RELIABLE SOLAR CELLS FOR YOUR MODULES

- **NEW!** Anti PID Technology (APT): **Prevention of potential-induced degradation ensuring high, secure yields.**
- Hot-Spot Protect (HSP): **Performance safety and increased fire safety due to sorting out of Hot-Spot cells.**
- **NEW!** Traceable Quality (Tra.Q™) signature technology: **First traceable and forgery proof solar cells on the market.**





NEW CELL GENERATION!
AVAILABLE NOW

Q6LMXP3 HIGH PERFORMANCE AND AESTHETICS HAVE A NEW NAME!

CELL TYPE Full-square monocrystalline solar cell
LAYOUT 3-busbar, 86 finger, backside with 3 x 6 busbar pads
POWER With up to 4.58 Wp and up to 18.8 % efficiency one of the highest performing monocrystalline solar cells

POTENTIAL POWER CLASS OF A 60 CELL MODULE: 255 Wp

- Full-square format: **Additional 3 % power output compared to pseudo-square monocrystalline solar cells.**
- 2.5 % safety margin included for the initial light-induced degradation of monocrystalline solar cells: **Mono yield protection from the very first day.**
- Homogeneous black full-square format: **Perfect solution for aesthetically highly appealing modules.**



NEW CELL GENERATION!
AVAILABLE NOW

Q6LTT3-G2 RELIABILITY AND SAFETY HAVE A NEW NAME!

CELL TYPE Multicrystalline solar cell
LAYOUT 3-busbar, 86 finger
POWER With up to 4.23 Wp and 17.4 % efficiency one of the most powerful multicrystalline solar cells

POTENTIAL POWER CLASS OF A 60 CELL MODULE: 245 Wp

- Classic backside layout with 3 busbars: **The proven standard for high modul output.**



NEW CELL GENERATION!
AVAILABLE NOW

Q6LPT3-G2 RELIABILITY AND SAFETY HAVE A NEW NAME!

CELL TYPE Multicrystalline solar cell
LAYOUT 3-busbar, 86 finger, backside with 3 x 6 busbar pads
POWER With up to 4.23 Wp and 17.4 % efficiency one of the most powerful multicrystalline solar cells

POTENTIAL POWER CLASS OF A 60 CELL MODULE: 245 Wp

- New backside layout with pad structure: **Our new basis for upcoming efficiency boosts.**

WE OFFER COMPREHENSIVE EXPERIENCE WITH INTERNATIONAL PARTNERS!



WESERSTADION BREMEN, GERMANY

APPLICATION	Commercial and Industrial (Facade)
PARTNER	EWE AG
CELL TYPE	Q6LM



SOLAR POWER PLANT BASILICATA, ITALY

APPLICATION	Utility
PARTNER	Q-Cells International GmbH
CELL TYPE	Q6LTT3



HEAD OFFICE OF THE Q-CELLS SE, GERMANY

APPLICATION	Commercial and Industrial (Facade)
PARTNER	Solarnova
CELL TYPE	Q6LTT

WE OFFER PV'S MOST THOROUGH TESTS!

QUALITY HAS TWO MEANINGS - SAFETY & LONGEVITY

FIRE SAFETY: Small material defects can cause overheating of the cell in the module. These so-called Hot-Spots can lead to strong degradation and - in the worst-case - to fire. Q-Cells is the only cell producer in the industry using a **unique test** to detect these defects and sort out **Hot-Spot** cells. This makes our cells and the modules they are used in the **safest on the market**.

YIELD SAFETY: High system voltages can cause potential differences and leakage currents in the modules. Due to this, potential-induced degradation (**PID**) can lead to system power losses of up to 20 %. **Q-Cells got to the root of this problem**. With optimizing our production process, we prevent the danger of PID on cell level making **Q-Cells solar cells PID free**.

LONGEVITY: Q-Cells sees beyond its own nose. We may only manufacture cells and modules; but as a solution provider, our **know-how stretches along the entire value chain** - from raw material to system operation. This ensures the best quality engineering and design of our products for their later utilization. In order to guarantee the liability of our products, **every cell is repeatedly tested and approved under strict criteria** during the production process. Only the best products will be delivered.

WE FULFILL OUR COMMITMENT - A SELECTION OF QUALITY CONTROL TESTS IN OUR CELL PRODUCTION



QUALITY TEST	CHECK FOR...	ENSURING...
Wafer check	... μ -cracks, correct geometry and resistivity before production.	... only perfect wafers enter the production.
Blue Eye	... homogenous, correct color after SINx.	... homogeneous aesthetics, maximization of efficiency by increasing light adsorption.
Visual inspection	... correct printing after every printing step.	... homogeneous and perfect aesthetics, prevention of short circuits.
Power test at STC	... power output and sorting in narrow 0.2 % efficiency classes. The output data of mono cells includes a safety margin of -2.5 % for the initial light-induced degradation.	... stabilized, trustworthy output data, clean sorting to maximize module output and to avoid module mismatch.
Shunt resistance	... low shunt resistance causing leakages. The higher the resistance the smaller the power loss, particularly in low light.	... increased annual yield even under low-light conditions.
Hot-Spot test	... Hot-Spot affected areas with an infrared camera.	... fire prevention, module safety, durability and reliable yield.
Degradation test	... initial light induced degradation with weekly samples.	... stabilized data and reliable yield.
Delamination tests	... safe and firm contacts with 3 different tests on daily samples.	... safe modules and module operation without failure.

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