

# REAL VALUE



## DO OTHER PANELS MEASURE UP TO THE SOLARWORLD STANDARD OF QUALITY?

Solar panels produced at SolarWorld manufacturing plants have operated in the field for the past 40-plus years, making us the longest continuously running commercial solar manufacturer. Only SolarWorld has the track record to prove that our solar panels outlast and outperform warranty expectations. How do we do it? By carefully controlling and precisely executing every step in the manufacturing process.

*It's the only way to guarantee an outstanding product. Every. Single. Time.*

### CAN OTHER SOLAR PANEL MANUFACTURERS MAKE THESE CLAIMS?

#### EXTREME TESTING

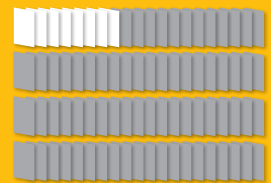
- We submit our modules to a testing regimen that **exceeds International Electrotechnical Commission (IEC) standards**, the solar industry's benchmark for quality.
- In the climate test chamber, we perform a temperature shock test for 9,125 cycles to match the number of days in our 25-year warranty. **IEC standards require only 200 cycles.**
- We apply **mechanical load tests 1.2 million times per module using wind and snow test loads.** This is **more than double the requirements of IEC standards.**

#### RIGOROUS MATERIAL SELECTION

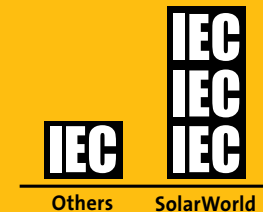
High-quality backsheets and EVAs (ethylene vinyl acetate sheets) increase longevity by sealing out moisture. Our module engineers evaluated 80 backsheets and EVAs. **Only eight lived up to SolarWorld's testing standards, but competitors routinely use the failing products.**

The quality checks we perform on every component are critical to ensuring every module meets the SolarWorld standard.

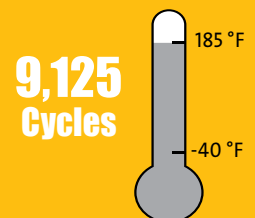
In tests of more than 80 backsheets and EVAs, **only eight passed** the SolarWorld Standard.

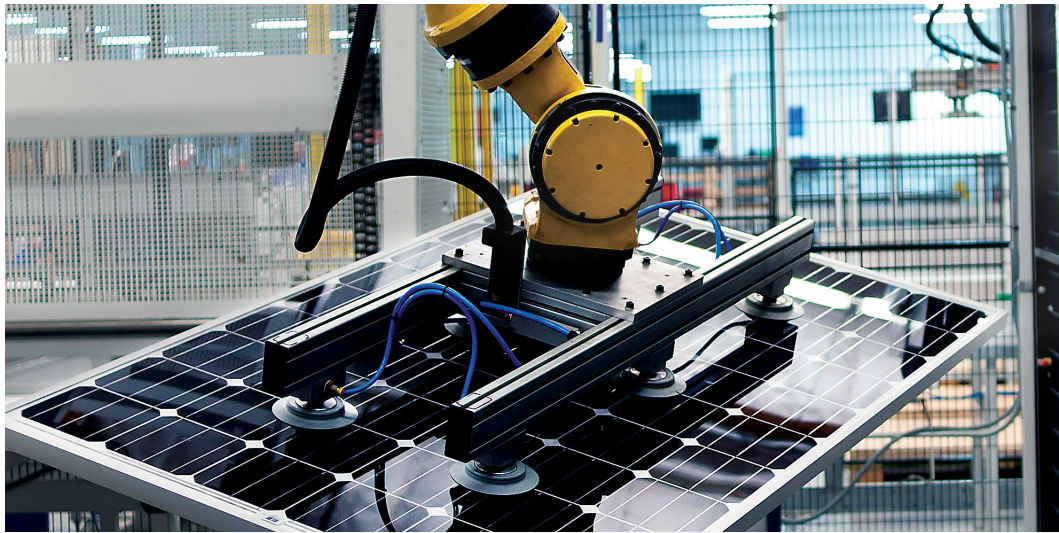


Every component we use must meet **at least three times IEC requirements.**



We test our panels for **9,125 temperature cycles**, ensuring top performance for 25 years.





## INSPECTION AND TRACEABILITY

- Every SolarWorld cell and module is individually inspected and tested.
- Critical quality parameters are checked at more than 100 inspection points along the line.
- Each module is assigned a unique serial number, identifying its inspection checklist throughout the manufacturing process.

## SUPERIOR JUNCTION BOX

- Across the industry, the attachment point between the junction box and the back of the module is the most common point of module failures. Prior to attaching the junction box on a SolarWorld module, we use a proprietary process that provides maximum adhesion.
- For added reliability, we robotically weld the four busbar tabs to the contacts in the junction box, where many other manufacturers just use clips, which have a higher probability of failure.
- Solar panels made by other manufacturers use an O-ring to seal out moisture between the junction box lid and the inner workings of the junction box. O-rings can fail over time, so at SolarWorld, we fill our junction box with silicone, giving our customers another layer of security to ensure there will be no moisture penetration or dendritic growth inside.



## AUTOMATED SOLDERING

- SolarWorld's fully automated manufacturing line is the most advanced in the world.
- Our soldering process is fully automated for every one of our panels' 2,016 soldering points.
- Other manufacturers often solder by hand, which can cause micro-fractures and other cell damage that dramatically limits the short- and long-term performance and lifespan of a panel.

## THIRD-PARTY VALIDATION

- SolarWorld module performance is independently verified by a third-party testing lab to industry standard IEC 61853-1. We provide the resulting files (PAN files) so that customers can most accurately model their systems.
- Other manufacturers' PAN files are often based on their own inputs and can be intentionally misstated to reflect desirable but erroneous results.