



**Choose certainty.
Add value.**

The future is bright

Certification and testing services for the
Photovoltaic Sector

TÜV SÜD

TÜV®







Europe currently represents the largest PV market, with predictions that solar energy will account for 15% of the EU's electricity power demand by 2020.

TÜV SÜD – your trusted PV partner

In the race to satisfy our ever-growing energy needs, solar energy is rapidly emerging as one of the most viable options currently available. The last 5 years has seen dramatic growth in the demand for photovoltaic (PV) cells and modules, especially in Europe and the US. To gain entry to these global markets, manufacturers need a certificate issued by a reputable third-party authority stating both performance and safety qualification of their products. To this end, the design and the construction of the product, the materials, components and the manufacturing processes will determine the compliance of the PV module with the requirements of existing standards.

TÜV SÜD is uniquely positioned to help you reach these markets and beyond in a reliable and time-efficient manner. The testing and certification services we offer ensure your PV products meet stringent performance and safety requirements according to European and international regulations.

We take great pride in delivering unrivalled levels of service and support through our tailored, customer-centric approach. Our team of experts possesses extensive knowledge to support you with global regulatory requirements and with the latest developments of the international standards.

Thanks to our strong local presence throughout Asia Pacific, you can be confident that our people on the ground speak your language. It's their job to provide timely responses and regular project status reports. By keeping you informed throughout every stage, TÜV SÜD minimises your time to market while improving your products and processes.



“We are highly satisfied with TÜV SÜD’s service provision and attitude. From the CEO down to the Project Engineer level, the Company is 100% committed to meeting our requirements.”

Steven Sun, VP of Quality, Best Solar

Certifying your PV modules with TÜV SÜD

Getting your PV modules successfully certified can be a complicated, time-consuming process. For this reason, only a relatively small number of PV manufacturers in Asia Pacific have obtained third party certification.

By gaining neutral third-party certification through TÜV SÜD, you enhance your reputation for quality. This is particularly important when it comes to assuring international PV investors and buyers of the safety and the performance qualification of your products. Obtaining our internationally recognised certification marks also engenders confidence in professional purchasers and consumers the world over.

Certification is not only a formal process. Perhaps most importantly, it is a learning process that helps your business learn more about a variety of key issues including:

- Technical requirements of the standards

- Internal Quality Control systems allowing adherence to these requirements throughout the production process
- Extending existing certifications

International PV policy guidelines and programmes

Many governments have PV policy guidelines in place:

- DENA (Germany): Government agency, EEG (German Renewable and Energy Law), Solar Roofs Programme, Renewable Energy Export Initiative.
- IDEA (Spain): Government agency, Spanish PV Programme.
- GSE (Italy): Government agency, CONTO ENERGIA Law.
- ADEME (France): Government agency, French National Energy Plan.
- CEC (California, US): California Energy Commission, Solar Incentive Programme.

Our globally recognized TÜV SÜD Marks engender confidence in investors and professional purchasers, and increase the marketability of your products the world over.





TÜV SÜD supports PV manufacturers, investors, importers and installers with a comprehensive range of services that span the entire value chain.

Testing and certification services

TÜV SÜD supports PV manufacturers with design qualification. Created from expert industry knowledge, our testing and certification services conform to international standards. The solutions cover:

PV Modules:

- IEC/EN 61215 (c-Si, performance)
- IEC/EN 61646 (thin-film, performance)
- IEC/EN 61730-1,-2 (c-Si & thin-film, safety)

PV Electrical Components

- Junction Box: DIN V VDE V 0126-5:2008
- Connectors: EN 50521:2008
- Cables: Draft DIN VDE AK 411.2.3:2008

PV Materials

- Back sheet: Partial Discharge Test, IEC 61730-2 (IEC 60664-1)
- EVA: peel test, gel content of lamination

Balance Of System (BOS) Components

- Inverters: IEC 62109, EN 50178
- Sun Trackers: Safety Test Protocol (combination of IEC standards)

Other services

- R&D testing: standard or extended environmental tests
- Electroluminescence, thermography
- Consultancy on PV laboratory requirements
- PV laboratory qualification for External Testing Programmes with TÜV SÜD

“The cooperation with TÜV SÜD was smooth and successful and the team supported us throughout the entire process. We are pleased that we chose TÜV SÜD as our Certification partner.”

Gerd Batereau-Neumann,
Head of Quality Management,
Johanna Solar Technology GmbH

PV investors, importers and installers

TÜV SÜD supports all your partners right across your value chain with a comprehensive suite of services. We provide off-the-shelf or customised quality programmes such as:

- Comparative testing & supplier evaluation
- Factory audits
- Pre-shipment inspections
- Standard or extended reliability testing



Adding value through design qualification

Test Nature	Parameter	Characteristics
IEC 61215, IEC 61646	Diagnostic	Visual inspection, maximum power determination, hot spot
	Electrical	Insulation test, wet leakage current
	Performance	Temperature coefficients, NOCT, low irradiance
	Irradiance	UV exposure, outdoor exposure, hot spot
	Environmental	Thermal cycles, humidity freeze, damp heat
	Mechanical	Mechanical load, hail test, robustness of terminations
	Light Soaking (thin-film)	Light induced degradation, stabilisation of Pmax
IEC 61730-1 and -2 (type testing for CE-marking)	Safety (Electrical, Mechanical, Fire)	Electrical hazards, mechanical hazards, fire hazards

PV services for PV stakeholders

PV Module Manufacturers	PV Operators (Investors, Importers, Installers)	PV Component Manufacturers
<ul style="list-style-type: none"> • Certification IEC 61215/61646 + IEC 61730 • TÜV SÜD Mark, CB Certificate • Extension of existing certifications • R&D tests • PV laboratory consultancy 	<ul style="list-style-type: none"> • Comparative testing & supplier evaluation • Factory audits • Pre-shipment services • Extended reliability testing 	<ul style="list-style-type: none"> • Junction box • Connectors • Cables • Invertors • Sun trackers





Six steps to success

1

Complete our application documents and confirm the order

2

Send us your PV samples and process-related documents

3

Our experts conduct the tests in TÜV SÜD's qualified PV laboratories

4

The manufacturing location is visited by our engineers for factory inspection

5

Receive the certificate, test report and TÜV SÜD's unique certification mark

6

Your personal key account manager will support you throughout the entire process

"Our project timeline was fulfilled smoothly through the TÜV SÜD experts' periodic status updates, their constant contact during all project phases, and most importantly, their response time at light speed."

Leon Chen, CTO, Polar Photovoltaics





www.tuev-sued.com/pv

The TÜV SÜD advantage

Choosing TÜV SÜD as your partner adds real value to your business. Throughout Asia Pacific, we are the recognised experts in quality and safety certification for the PV sector according to European and international regulations.

Our strong customer-oriented approach

Close collaboration from the test planning stage; periodic project status reports and monthly updates; factory inspections with expert insights on certification requirements and future PV project handling

A universally recognised commitment to quality

Professional purchasers and consumers know that TÜV SÜD Marks stand for safety and quality

Our industry and technical expertise

Over 14,000 skilled employees, more than 150,000 product certifications and 35,000 management systems certifications issued to date

German heritage and engineering excellence

Founded over 140 years ago, headquartered in Munich, Germany and powered by German engineering excellence and expertise

Our global approach

One-stop global compliance partners to international standards, testing and conformity requirements

Independent and impartial

Enhanced reputation through proven quality and safety certification by a neutral third party

Total process transparency

Timely responses, and regular project status updates during the entire testing and certification process

Contact us today to access one-stop PV expertise worldwide:

Email us at: pv@tuev-sued.com

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