

Qualification of solar mounting systems

PV module qualification	Benchmarking	Components
PV module certifications	BIPV	PV plants
Performance characterisation	Mounting systems	Certification of installation firms
Stress tests	Calibration	Solar thermal systems
Quality assurance	R&D and consulting	Other product tests

So that your mounting frames will meet general and national requirements and you can credibly market the special quality of your products, we offer a range of services from product engineering to qualification and certification and beyond.

Well advised. For safe installation.

Mounting frames or mounting systems undergo a continual optimisation process and are increasing in importance in light of necessary reductions of planning and installation costs, along with cost savings in general. Also desirable is a maximally flexible adaptation of the base frame to the size and space constraints at the installation site, as determined by (e.g.) the roof geometry and existing structures, without further expenses for the adaptation of the frame statics. Planning tools should take into account the static boundary conditions and allow fast detailed planning with pre-cuts and all necessary roof connecting points and small and joining parts.

Depending on the areas of application of the base frames, international as well national standards will have to be ap-

plied in order to meet country-specific requirements (in particular, the United Kingdom, Italy, USA, etc.).

More detailed consideration and testing necessitates building integration, with the other functions of the facade or roof cladding being performed by the solar modules. The mounting system will then have to meet the corresponding preconditions.

In particular, the system plays a crucial role in rain resistance and fire safety. For reducing uncertainties in the mar-

ket and providing greater transparency of the product and system qualities, TÜV Rheinland offers a comprehensive range of services concerning mounting systems for solar energy plants.

The documented certification procedure fulfils the criteria internally developed by TÜV Rheinland. Besides tests, completion inspections are also performed for ensuring a constant level of quality.

TÜV Rheinland qualification criteria

Manageability and ease of operation

- Sharp edges (work safety)
- Simple implementation, number of components, small parts
- Degree of pre-installation
- Required tools and aids
- Adaptation, error tolerance
- Replaceability of individual modules, collectors and accumulators

Suitability of the employed materials and properties of the system

- Corrosion resistance
- UV resistance
- Susceptibility to fouling
- Water drainage, back ventilation, leak tightness
- Fire behaviour
- Modification of the module attachment
- Disassembly possibilities
- Possibilities for tubing and wiring
- Integration in the lightning protection system, possibilities for earthing, potential equalisation
- Confirmation of the assured properties, limit load, definition of usability
- Surface weight of the overall system
- For flat roof systems stability against overturning, slip resistance, wind tunnel testing
- For roof-mounted systems leak tightness, fire safety

Always a good sign.



This mark stands for all the information about products, services and systems that are tested, certified or inspected by TÜV Rheinland.

Transparent, available anytime worldwide – powerful and unique. The TÜV Rheinland test mark.

Inspections (TÜV Rheinland standard 2PfG 1794/10.2010)

- Inspection of the documentation (assembly instructions, system description, etc.)
- Checking of the technical drawings for all components
- Checking of the static calculations, including checking of the verifications of stability
- Assessment of additional tests and certifications
- Checking of corrosion resistance
- Factory inspections

Inspections for requirements of national markets

- Accompanying consulting on DIBt (German Institute for Building Technology) approval
- Testing and certification for the UK market according to MCS 012 for slanted roof and in-roof systems
- Certification according to UL 2703 for the US market

Extended stress tests

- Salt spray test according to IEC 61701
- Rain resistance test according to EN 15601
- Fire and flammability test according to EN 1187

Aspects of the factory inspection

- Discussion of the submitted documents and results
- Checking of components against drawings and spot checking of the delivery notes and invoices from the suppliers
- Storage, goods receipt and issue inspections
- Quality assurance measures
- Project planning, handling, work procedures, production, consignment

Advantages:

TÜV Rheinland has decades of experience in the field of solar technology. Take advantage of the achievement potential of our worldwide test laboratories offering you fast and first-class service.

With TÜV Rheinland you'll have a partner with worldwide acceptance at your side. Further services from a single source are possible in all project phases.



TÜV Rheinland
Energie und Umwelt GmbH
Am Grauen Stein
51105 Köln
+49 221 806-5200
solarenergy@de.tuv.com
www.tuv.com/solarenergy