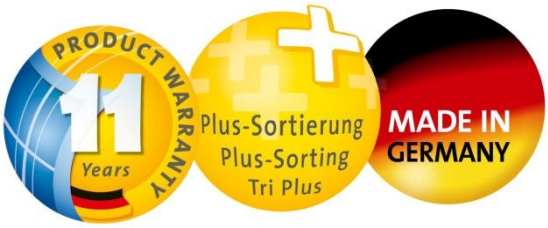
Energy meets quality.

The Heckert Solar GmbH is committed to the production of PV modules with an outstanding quality as regards output and life span. To fulfill this promise, the production has been continuously improved. The results are high quality modules 100% "Made in Germany", which, from a technical point of view as well as for quality reasons, show exceptionally high standards.

In order to achieve these high standards Heckert Solar accepts longer production times than what is customary within the PV industry. State of the art production lines, dedicated and qualified employees, more than 100 test stations and many years of know-how ensure genuine German quality and high yield stability over a long period of time. Heckert Solar grants up to 20 years of product warranty. In addition the module manufacturer provides 25 years performance warranty.



<u>10 good reasons to go with Heckert Solar</u>:

1 High-quality raw materials and well-established suppliers
Starting with the supplier selection, Heckert Solar makes high demands which are, indeed, required for the fabrication of a superior product. Heckert Solar uses only high-quality material from well-established suppliers. In the area of system-relevant components like inverters, mounting systems or wiring we also cooperate exclusively with the market leaders.

2. Professional know-how and extensive experience as regards production
Fully automatic production lines ensure a consistently high product quality and a careful handling of all components. Our way of cell handling reduces the movement of the sensitive cells to the absolute minimum. Thus, mechanical stress and the risk of micro-cracks in the cell is minimized.

3. Use of temperature-controlled soldering
The soldering process is performed under constant temperature control monitored by a so-called pyrometer and has the advantage of exposing the strings to a much lower thermal load as usual. Due to this, unnecessary thermal stresses already are avoided in the warm-up phase of the material. Pre- and post-heating cycles integrated in the soldering process provide an excellent soldering quality. The risk of micro-cracks in the cell is minimized dramatically. Additionally integrated in the soldering process are automatic controls of cell position and string connection as well as crack, burst and print control of the cells.

4. Smart junction box by Tyco Electronics
Another core element of the modules is the junction box supplied by Tyco Electronics. TE uses the 2-component injection-moulding technology. A high dimensional protection circuit preventing hot-spot effects in the PV module ensures the life span of the entire PV system additionally. Finally, the junction box features a pressure equalizing membrane inside. To complete the sealing, Heckert Solar roughs off the rims of the junction box in an additional production step by plasma nitriding. In addition with the use of a polymer instead of silicone glue this results in a temperature-insensitive connection which ensures the tightness over the complete life span of the solar module (IP65).

5. Increased degree of cross-linking of EVA foils ensures high protection of cells

Again, Heckert Solar invests more time. Due to longer lamination periods we achieve cross-linking rates of up to 80%. The optimized cross-linking rates result in a more durable and stable encapsulation and impede moisture penetration.

6. Innovative glueing technology

Laminate and frame are connected permanently with a special 2-component glue. Pull-off forces effected by snow or ice can be prevented. In addition, the condition of the special glue ensures a higher stability and effectively prevents water from entering the module compound. Further advantages of this special glueing technology are a very good weather-, ageing- and UV-resistance, an excellent edge sealing and high bonding strength.

7. Certified acc. to latest IEC-Standard

Due to the above-mentioned particular glueing technology and the resulting high module stability the NeMo® modules by Heckert Solar are extremely robust and imperishable. Our solar modules have been certified according to the latest TÜV-Standard IEC61215:2016. The modules were subjected to a load test up to 8,100 Pa by TÜV Rheinland and under consideration of the safety factor 1.5 certified up to a pressure load of 5,400 Pa.

8. PID prevention, insulation strengths & electroluminescence

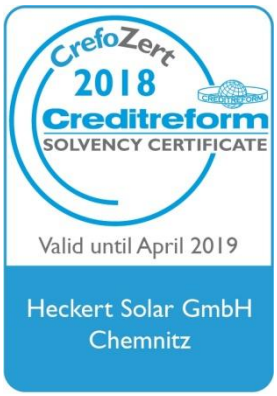
Both Heckert Solar modules and processed raw-materials have to pass several internal quality tests on a regular basis. These tests include, among others, the Hi-Pot-test to ensure the insulation resistance of the modules as well as the PID test (potential-induced degradation) which helps to control the material composite. The electroluminescence process is used to avoid possible technical defects.

9. Plus-sorting up to +4,99Wp

Our flasher with grade AAA provides precise measurement results. Each module delivered by Heckert Solar has a plus tolerance of up to 4.99 Wp. This means, you always get more power than you have paid for.

10. Heckert Solar is one of the best performing companies in Germany

As a family-owned company Heckert Solar benefits from short decision paths, a lean management and personal interest in the success of the company. The competencies focus exclusively on the photovoltaic development and production. With an equity ratio of roundabout 60-70% Heckert Solar is in a good financial position and stands out from other German manufacturers. This is why Heckert Solar has been awarded regularly certificates for outstanding credit-worthiness for the last 8 years. CrefoZert confirms that the company ranks among the top companies in Germany as regards financial strength and liability.



Conclusion:

For over 17 years Heckert Solar manufactures premium solar modules in Chemnitz, Germany and has realized several 1,000 projects in Germany and beyond. More than 1,000 customers are convinced of the quality of our PV modules.