



WE LIGHT UP  
YOUR FUTURE  
MODULES BUILT  
FOR ETERNITY

MADE IN GERMANY

# SONNENSTROMFABRIK THE HIGH TECH COMPANY

Sonnenstromfabrik has acquired production facilities of former Centrosolar Group in 2014 and today runs the fab with focus on: glass-glass modules, high performance modules, carbon footprint modules, standard modules, OEM products.

The fab located in Germany is one of the most modern and efficient module production facilities in Europe:

**Capacity**  
325 MWp

**Uptime**  
> 90 %

**In-time Delivery**  
99,5 %

**Claim Rate**  
0,02 % over  
25 years history

Highest efficiency whilst maintaining flexibility.

**Total Invest**  
30 Mio. EUR  
100 % Equity

**Major Shareholder**  
80 % Pari Holding GmbH



## SONNENSTROMFABRIK STRONG BACKBONE



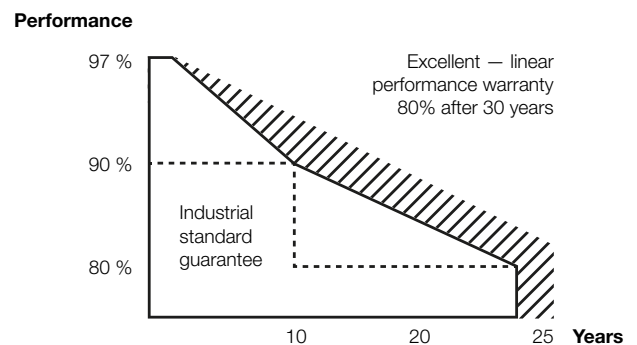
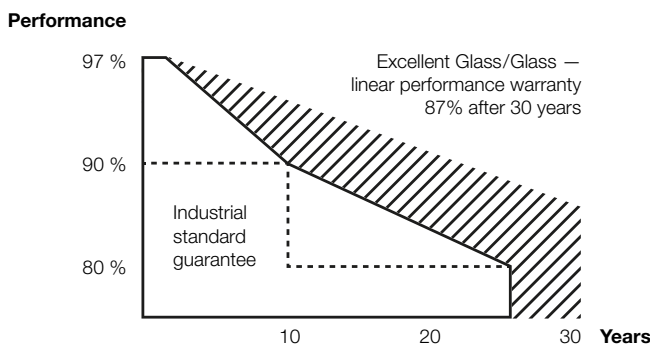
Sonnenstromfabrik ist a subsidiary of Pari Group — a diversified group of none-consolidated enterprises controlled by the Guido Krass family.

In total the group employs 3000 specialists in global growth markets and realizes a top line of > 500 Mio. EUR.

Pari Group business activities cover the segments Health Care, Green Tech & Renewables and Technology.

**Vision of Pari Group**  
„To be profitable and make the world a little bit cleaner so that our children can be proud of our new technologies to produce renewable energy and increase the energy efficiency in our day-to-day life.“

## WE SECURE YOUR INVESTMENT



	Product warranty	Optional extension of product warranty	Performance warranty	Performance warranty after 1 year	Performance warranty max	Max annual performance loss starting year 2	Total Care
<b>Excellent Glass/Glass</b>	20 years	30 years	linear	97 %	30 years, 87 %	0,35 %	yes, optional
<b>Excellent</b>	12 years	25 years	linear	97 %	26 years, 80 %	0,68 %	yes, optional

# A BROAD VARIETY THE NEW MODULE GENERATION

## Excellent Modules

Backside  
Frame  
Optional



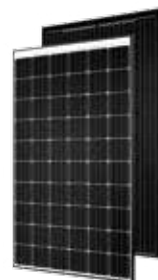
**Poly smart/black**

60 cells, up to 270 Wp  
72 cells, up to 320 Wp  
white/black  
silver/black  
low reflection glass



**Mono smart/black**

60 cells, up to 285 Wp  
72 cells, up to 340 Wp  
white/black  
black  
low reflection glass



**Mono PERC smart/black**

60 cells, up to 305 Wp  
72 cells, up to 360 Wp  
white/black  
black  
low reflection glass

## Excellent Glass/Glass Module

Backside  
Frame  
Optional



**Poly balance/smart/black**

60 cells, up to 270 Wp  
72 cells, up to 320 Wp  
transparent/white/black  
black  
black/Solrif (roof integrated)



**Mono balance/smart/black**

60 cells, up to 285 Wp  
72 cells, up to 340 Wp  
transparent/white/black  
black  
black/Solrif (roof integrated)



**Mono PERC balance/smart/black**

60 cells, up to 305 Wp  
72 cells, up to 360 Wp  
transparent/white/black  
black  
black/Solrif (roof integrated)

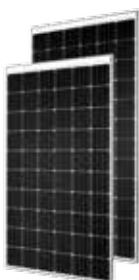
## Low Carbon Modules

Backside  
Frame



**Professional Poly  
Excellent Poly**

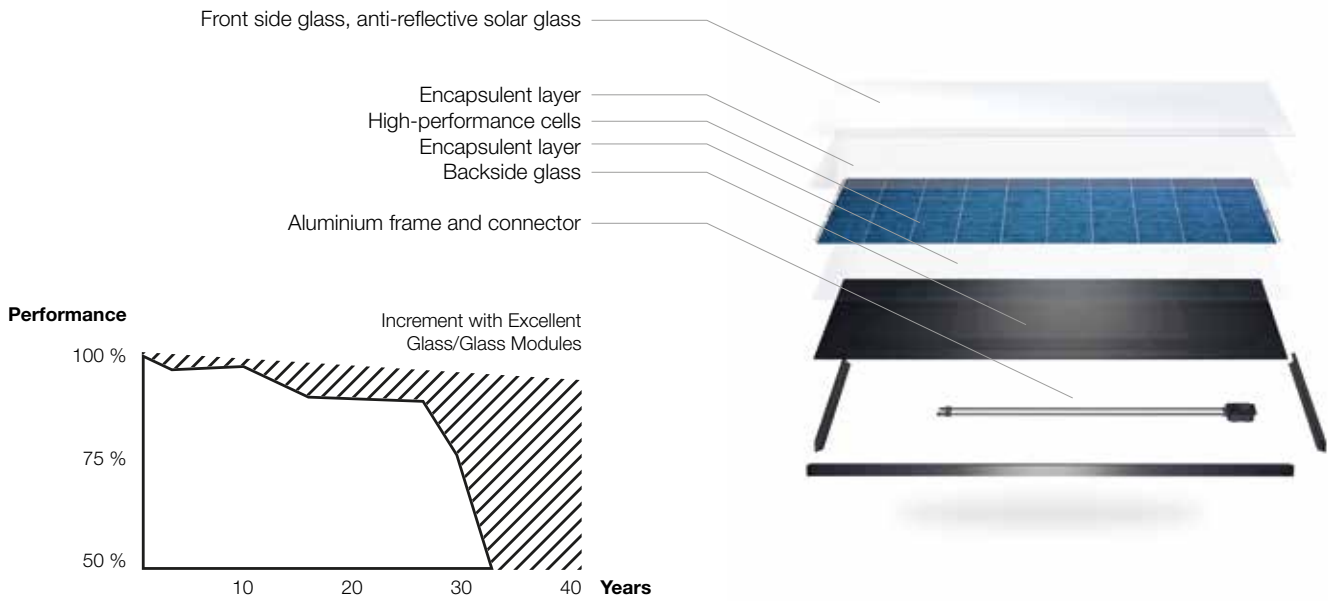
60 cells, up to 275 Wp  
72 cells, up to 330 Wp  
white  
silver



**Professional Mono  
Excellent Mono**

60 cells, up to 285 Wp  
72 cells, up to 345 Wp  
white  
silver

# EXCELLENT GLASS/GLASS – NEW STANDARDS IN DURABILITY AND ENDURABILITY



Moisture, cold temperatures and other harsh weather and environmental conditions can dramatically affect the performance of your modules. Sonnenstromfabrik Excellent Glass/Glass modules show excellent performance, even under the most extreme conditions, ensuring stable yields over the long-term.

While product lifetime of glass-foil laminates is limited to 23–30 years, glass-glass laminates have a lifetime beyond 40 years. Furthermore the performance loss of glass-glass modules is dramatically lower than with glass-foil modules.

Conventional modules do have a glass front and a plastic backside. The plastic backside is the weak point of the module with regard to durability. Furthermore, mechanical load results in micro cracks which in turn lead to power loss.

With glass-glass laminates the plastic backside is replaced by a glass-backside, thus the module is significantly stronger than a classical glass-foil laminate, whilst maintaining nearly similar weight.



### Compatibility

Whether upright or horizontal – with Sonnenstromfabrik modules, installation is always quick and easy. Of course the solar modules are compatible with the most commercially available mounting systems.



### Cells in neutral phase

Solar cells in neutral phase are especially protected against tensile and pressure loads. The modules are extremely stable, even with heavy mechanical loads, guaranteeing a long product lifetime.



### Anti reflective glass

The anti-reflective solar glass, together with the PID-free high-performance cells, ensures excellent performance with an up to 4 % increase in yield and optimum light absorption for the Excellent Glass/Glass modules, even in unfavorable lighting conditions.



### Glass-glass composite

The yield stability of the glass-glass modules is far higher than that of the standard glass-foil modules because no moisture can penetrate the systems. Unlike our stable glass-glass composite modules, foils age and are at risk of developing scratches or damages as a result of harsh environmental conditions.



### A wide selection for every application

Special attention was placed on developing an application-oriented range of products for the modules. The glass-glass modules offer the perfect solution for every roof situation: for industrial and private buildings as well as for in-roof or on-roof systems.



### Load

Thanks to the stable connection between the solar glass surfaces, Sonnenstromfabrik glass-glass modules offer higher resistance to unfavorable conditions. The second sheet of glass gives the modules a torsional stiffness and stability that cannot be achieved with glass-foil modules. As a result, these modules are ideally suited for all snow and wind or sand load zones.

## SUSTAINABILITY MODULES WITH BEST CO<sub>2</sub> FOOTPRINT

Sustainability in module production is a central claim of the module producer Sonnenstromfabrik. Sonnenstromfabrik employs only raw materials with certified low carbon footprint. To secure this, Sonnenstromfabrik has entered several strategic

alliances with key suppliers of low-carbon components.

The production of modules at Sonnenstromfabrik follows the latest methodologies and technologies in order to minimize the CO<sub>2</sub>-exhaust.

Sonnenstromfabrik is one of the first enterprises that has minimized its CO<sub>2</sub>-balance and has certified this accordingly. Products of Sonnenstromfabrik convince via a CO<sub>2</sub>-balance, significantly below values of its competitors.



An internal team of experts continuously improves the carbon balance of Sonnenstromfabrik modules.



# SONNENSTROMFABRIK

## QUALITY AND PERFORMANCE MADE IN GERMANY

### We secure your investments

We only distribute photovoltaics modules made in our German module production facility. The long-term experience of Sonnenstromfabrik is reflected in the extraordinary high quality and reliability of our photovoltaics modules.

#### Total Care

Up to 30 years product and performance warranty give ideal for your investment.

In cooperation with Ergo, Sonnenstromfabrik provides an optional Total Care insurance and protects your system for 5 years against theft, weather damages and also compensates for performance loss due to product damages.

#### Highest Yields

Our modules regularly deliver higher than expected yields – tested and confirmed numerous times.

#### Glass-Glass competency

Glass-Glass modules are produced with an innovative production technology specially developed by Sonnenstromfabrik.

#### Made in Germany

Our products and services undergo extensive quality testing. All products can be supplied with German certificate of origin issued by the chamber of commerce.

#### Certified CO<sub>2</sub> footprint

The production of modules has been audited for lowest CO<sub>2</sub> footprint. When solar modules are removed from service, CS Wismar takes them back and recycles them according to the latest standards.



#### Broad product portfolio

Thanks to the unique production footprint, Sonnenstromfabrik can offer a broad portfolio: glass-glass/glass-folio, Poly/Mono/Perc, 60/72 cells, several color combinations.



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