solar fabrik

*Creating a Powerful Future*

# Back Contact Technologie

# Back Contact Technologie combines

performance

resilience

aesthetics

# Your advantages

**Rear contact**
Die The electrical conductor tracks are connected to the rear of the cell – for more light absorption on the front.

**Optimised current flow**
The rear contact system allows the current to flow along the shortest path, reducing resistance and increasing electrical efficiency.

**Higher efficiency**
The completely shadow-free front of the cell provides more active surface area, which means: more light absorption and higher energy yield.

**Minimised electrical losses**
Shorter cable runs reduce resistance and increase efficiency.

**Better temperature stability**
Back Contact cells feature optimised thermal management and deliver stable performance even at higher temperatures.

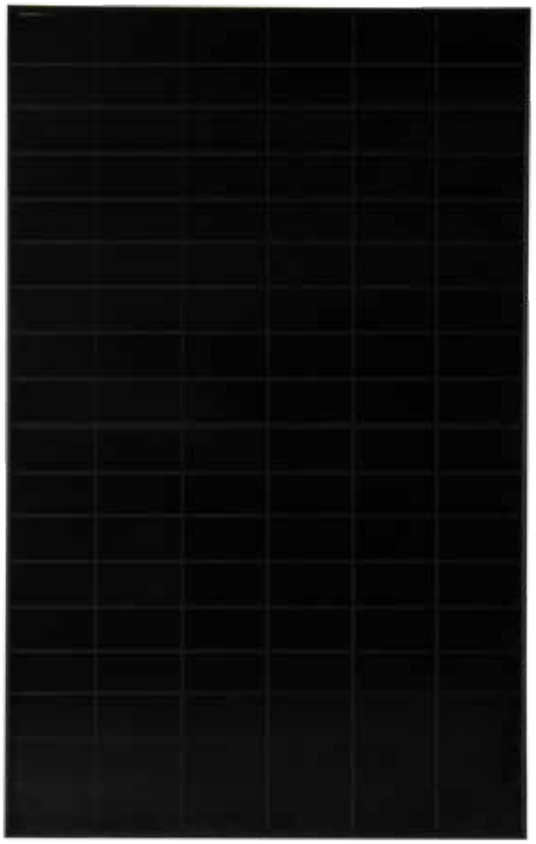
**Reduced hot spot formation**
More even current distribution reduces the risk of hot spots.

**Reduced potential for errors**
The rear contact minimises the risk of micro-cracks and contact problems on the front. The advantage: fewer failures and longer life.

**Increased mechanical stability**
Improved load-bearing capacity of the cells due to reduced material stresses.

Bild: Solar Fabrik Mono S4 BC Full Black

# Solar Fabrik Mono S4 Halfcut BC Full Black

**Fire protection**

The module meets high standards in fire protection and therefore offers impressive safety features.

**Hagelschutzklasse 4**

The module can withstand ice balls with a maximum diameter of 40 mm and a speed of up to 29.2 m/s.

**EUPD Awards**

Solar Fabrik has been receiving the Solar Prosumer and TOP Brand PV Awards for years. A real added value for the industry.

**Energy Transition Award**

The company has also received the Energy Transition Award for the second year in a row for its sustainable practices.

# Multiple yield BC module *

# ca.116€

We tested the BC module 475 W in comparison to a conventional N-Type TOPCon module 450 W in the design tool.

The result: our Mono S4 BC Full Black Module achieves an additional yield of approximately €116 per module over a period of 30 years.

A module that creates the future!

We used our location in beautiful Laufach as a reference for the calculation. The basis was an average electricity price of €0.40/kWh and a feed-in tariff of €0.08/kWh.
As an example, we considered a typical household with an annual electricity consumption of 4,400 kWh, in combination with a 10 kW system including storage.

* The calculation example is based on average values (sunshine hours, own consumption, electricity price, etc.). Different values may apply in individual cases.

# Additional benefits

**30-year product and power warranty**
This positions Solar Fabrik at the forefront of the market.

**elegant black mesh design**
The module blends harmoniously into any roof.

**bifacial N-type cells**
Low degradation and up to 30% higher energy yields.

**versatile application**
With the size of 1800 x 1134 x 30 mm, the module can be flexibly incorporated into various construction projects. At the same time, it complies with the requirements of the new 3 m² rule.

**optimised space utilisation**
With a space utilisation factor of 235 W/m², the module is a real boost in efficiency and gets the most out of your customer's roof. Future-proof and powerful.

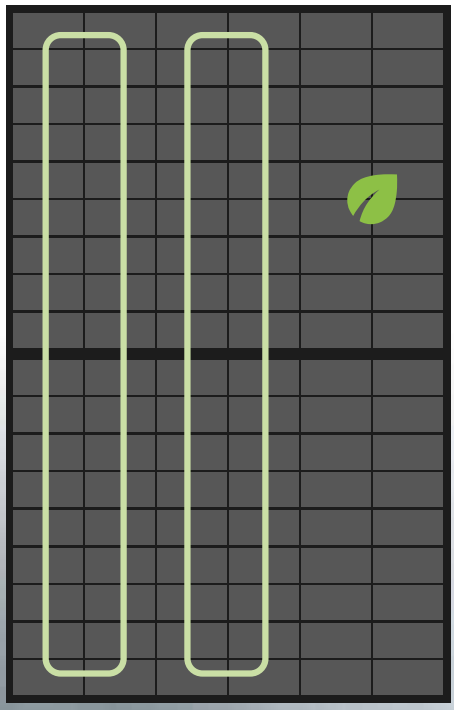
# Technology at a glance.

## Anti Shading

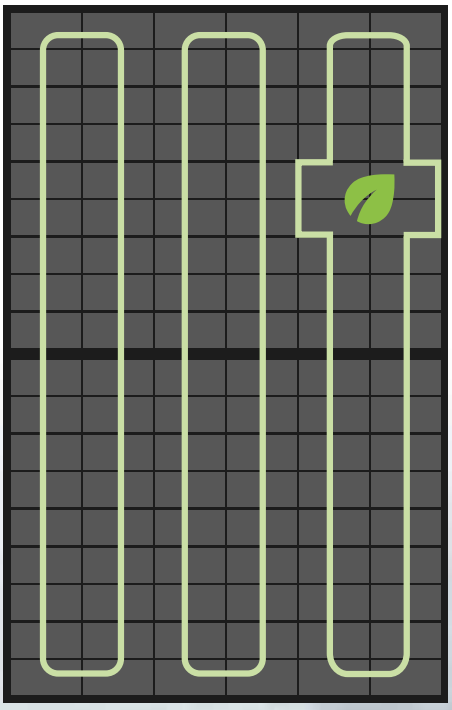
Solar systems are occasionally subject to partial shading, e.g. from chimneys, trees, leaves or clouds. The Solar Fabrik Mono S4 Halfcut BC Full Black counteracts this with its anti-shading technology.

With conventional solar power modules, shading of individual cells causes individual module areas to be switched off via the bypass diode.This is not the case with the Back Contact Series: here, the cell structure with an innovative bipolar passivation layer maintains the flow of current in the module even in partial shading.

Instead of switching off individual cell groups, the modules can flexibly divert the current via alternative paths. This allows unshaded areas to continue to operate efficiently and significantly reduces the effects of shading.



**N-Type TopCon solar module**



**Mono S4 Halfcut BC Full Black**

# Low-light behaviour

Back-side contacting keeps the entire front of the module free of disruptive metal contacts, maximising the effective light-absorbing surface and minimising reflection losses.

This design pays off especially in diffuse light, overcast skies, in the early morning or evening hours. The cells can absorb more photons and convert them into electrical energy more efficiently. Optimised cell interconnection improves internal current flow, resulting in lower resistance losses and thus higher efficiency even under suboptimal light conditions.

Another advantage is the more even temperature distribution achieved by rear-side contacting, which improves thermal behaviour and reduces performance losses under fluctuating light and temperature conditions.

Back contact modules are therefore particularly suitable for locations with frequently changing weather conditions or roof surfaces with suboptimal orientation, as they deliver consistent and reliable yields even under low irradiation.

# Microcracks

With front-contact modules, a microcrack can easily isolate an entire cell area.

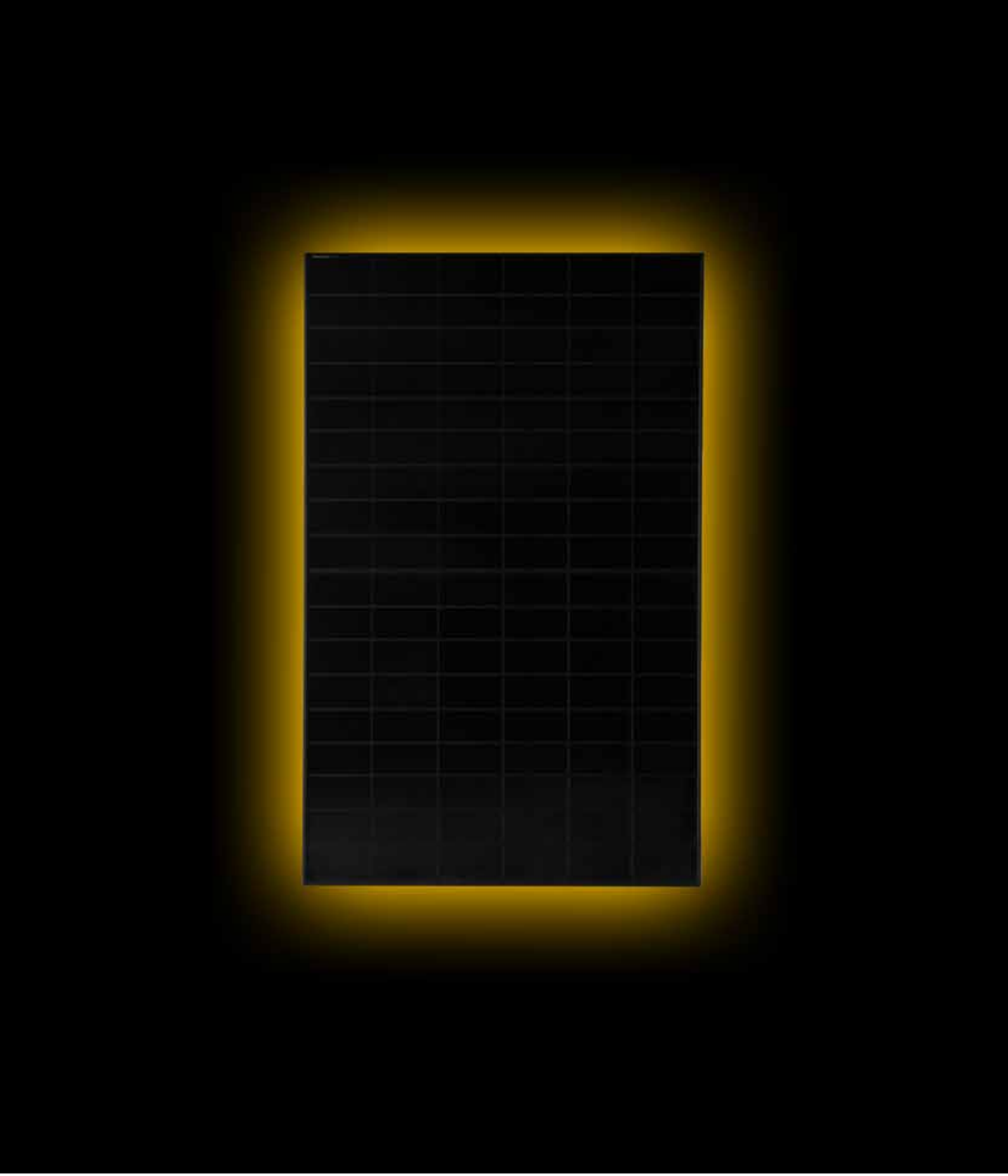
The Mono S4 Halfcut BC Full Black, on the other hand, has a high tolerance to microcracks at the cell level. Thanks to back-contact technology, the conductor tracks are completely connected to the rear of the cell.

This means there are no front contacts and therefore no Z-structure of the conductor tracks, which would otherwise ‘clamp’ the cell and cause 48% more cell stress at the contacts. In addition, there are no contact breaks on the front.

Even if mechanical influences,
e.g. during transport or installation, cause fine cracks in the silicon structure, the electrical conductivity is largely retained because the contacts are made over a large area and redundantly on the rear side.

In addition, the combination of half-cut cell technology and the glass-glass construction significantly reduces the mechanical stress per cell. This reduces the likelihood of microcracks forming due to the design.

The long-term module performance remains stable, even under extreme environmental conditions.



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