



SHARP Energy Solutions

# Your Solar Partner for Life

Be ahead of your competition with advanced products.

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**SHARP**  
Be Original.

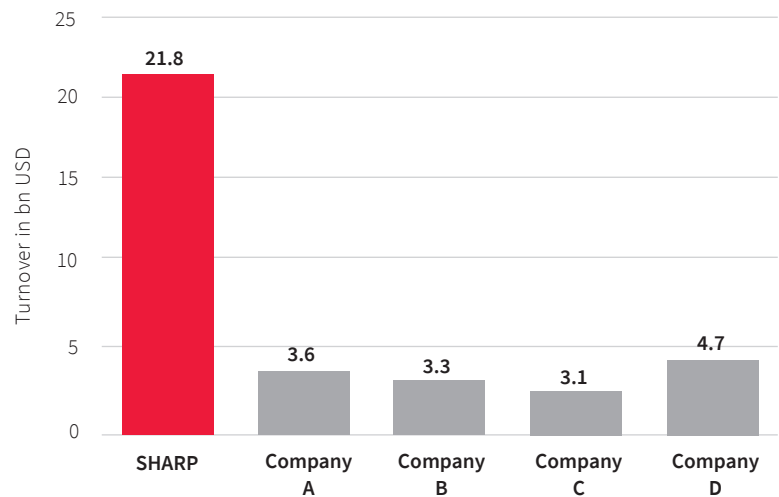
# Leverage the industry's longest-standing experience

Long-term partnerships are built on trust, strength, and reliability. When our competitors started entering the market in the late 1990s, SHARP already had about 40 years of experience with a wide range of solar panel applications. We are proud of this long heritage and the many successful projects made possible by SHARP solar panels around the globe.

### Secure your customers investment

As part of a corporation whose diverse portfolio includes a broad range of consumer electronics, we rely on a stable financial backbone for our solar PV business, confirmed by Bloomberg's Tier 1 listing. In contrast to pure solar manufacturers, we can withstand the fluctuations of the highly volatile solar markets. For our partners and customers, this means that we will be around and by your side for a long time.

Net Sales comparison with main competitors (pure PV companies) in 2019

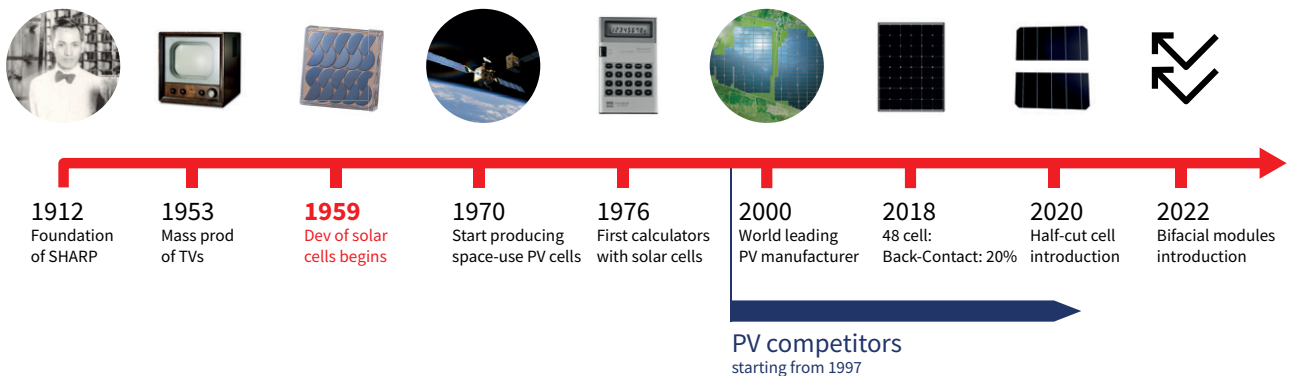


**60 YEARS**  
Solar Expertise

**1 TIER**  
Bloomberg

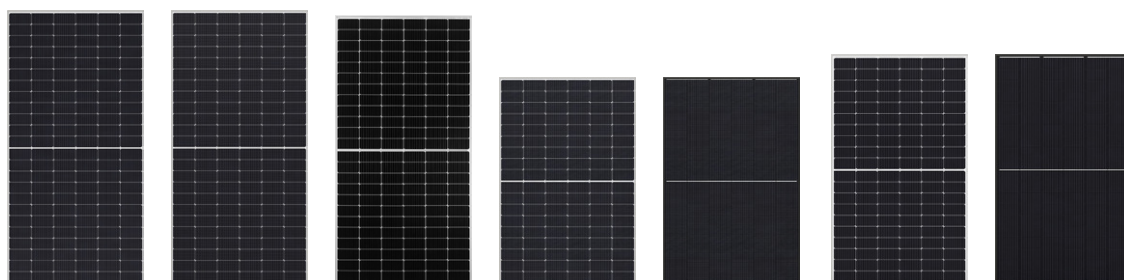
### Benefit from a well known consumer brand

100+ years of company history and six decades of PV experience



# Open up every market segment to generate new business

## Half-cut cell PERC mono line-up



	<b>Bifacial Project Solution</b>	<b>Project Solution</b>	<b>Project Solution</b>	<b>High Performer</b>	<b>Design Solution</b>	<b>High Performer</b>	<b>Design Solution</b>
Power	540 W (front)	540 W	450 W	410 W	400 W	375 W	365 W
Model	NB-JD540	NU-JD540	NU-JD450	NU-JC410	NU-JC400B	NU-JC375	NU-JC365B
Half-cells	144	144	144	108	108	120	120
Busbars (round ribbons)	10 BB	10 BB	9 BB	10 BB	10 BB	9 BB	9 BB
Wafer type	M10	M10	M6	M10	M10	M6	M6
Module efficiency	20.9%	20.9%	20.4%	21.0%	20.5%	20.3%	19.7%
System voltage	1,500 V	1,500 V	1,500 V	1,000 V	1,000 V	1,000 V	1,000 V
Size	2,278 x 1,134 x 30 mm	2,279 x 1,134 x 35 mm	2,108 x 1,048 x 35 mm	1,722 x 1,134 x 35 mm	1,722 x 1,134 x 35 mm	1,765 x 1,048 x 35 mm	1,765 x 1,048 x 35 mm
Weight	32.5 kg	27.8 kg	25.0 kg	21.8 kg	21.8 kg	21.0 kg	21.0 kg
Pallet	36 pcs	31 pcs	31 pcs	31 pcs	31 pcs	31 pcs	31 pcs
Truck (40 feet)	720 pcs	620 pcs	682 pcs	806 pcs	806 pcs	806 pcs	806 pcs



### Go Online!

Select a module and see the datasheets and certificates  
[www.sharp.eu/solar-panels](http://www.sharp.eu/solar-panels)

# Achieve ROIs quickly

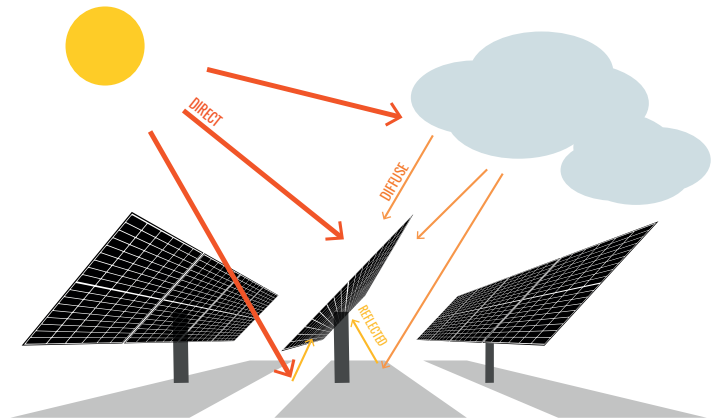
## Highest-yielding half-cell PV panels

The main benefits of the half-cell modules for users are a 2-3% higher module performance and higher total yields. In a half-cell module, standard full cells are cut into two equal halves. In addition, the module is also divided into an upper and a lower half and the half-cells arranged thereon.

By dividing the cells, the power generated per cell is halved and resistance losses on cell and module level are reduced to one quarter. In addition, the halved current can significantly reduce the temperature in the cells and therefore reduce the risk of hot spot effects. The three small junction boxes, each fitted with only one bypass diode, are transferring less heat to the cells below as well. These factors also boost the longevity of the overall system and dividing the module in half will also have an impact on the overall performance. The path of the generated current is shortened by dividing the module, further reducing resistance losses. Mounting the module vertically will also prove beneficial in shading situations. For example, if the lower half of the module is shaded, users can still generate a 50% performance with the upper half, while the production of a full cell module completely breaks away. This could be the case with inter-row shading for free-field or tilt-mounted roof installations. With half-cell modules, therefore, higher wattage classes and higher yields per system can be achieved.

## Bifacial Technology

The additional gain of bifacial modules is coming from irradiance received on the back of the module. This can be reflected direct sunlight, reflected diffuse sunlight or diffuse light that is not reflected. Instead of an opaque backsheet on the back of the PV panel the back of our bifacial panels has a glass layer that allows light to reach the back of the cells. This additionally generated energy is the main benefit of bifacial technology over monofacial technology.

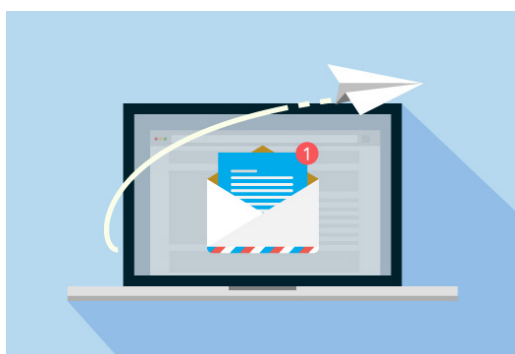
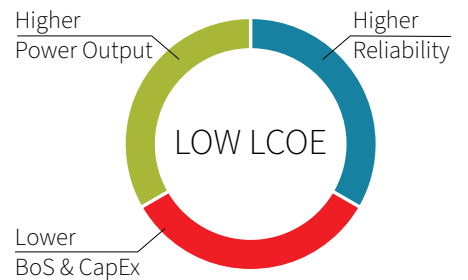


## 5% is more than 5W

SHARP is the only company with up to 5% more power than specified on the datasheet. The power tolerance of other companies is 0/5 W.

## Engineered for low LCOE

Our monocrystalline PV modules are optimised to achieve low LCOE (Levelised Cost of Electricity) so that you can maximise your return on investment. Your choice of PV panel affects LCOE in three ways.



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for business customers



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[www.sharp.eu/solar-newsletter](http://www.sharp.eu/solar-newsletter)



## Industry leading guarantees

### Start the guarantee period with the handover to the end customer

SHARP offers a product guarantee and linear power output guarantee. These guarantees to the end user start at the point when the product actually arrives at the end user. All customer guarantees are managed from our offices in Hamburg, Germany.

**15  
YEARS**

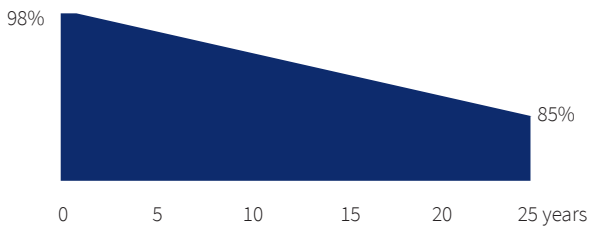
### 15 year product guarantee\*

SHARP offers a 15-year EU product guarantee.

**25  
YEARS**

### 25 year linear power output guarantee on monofacial panels\*\*

Guaranteed minimum power output of 98% of P<sub>nom</sub> in the first year and minimum of 85% in year 25. 0.54% maximum annual degradation after the first year.



**30  
YEARS**

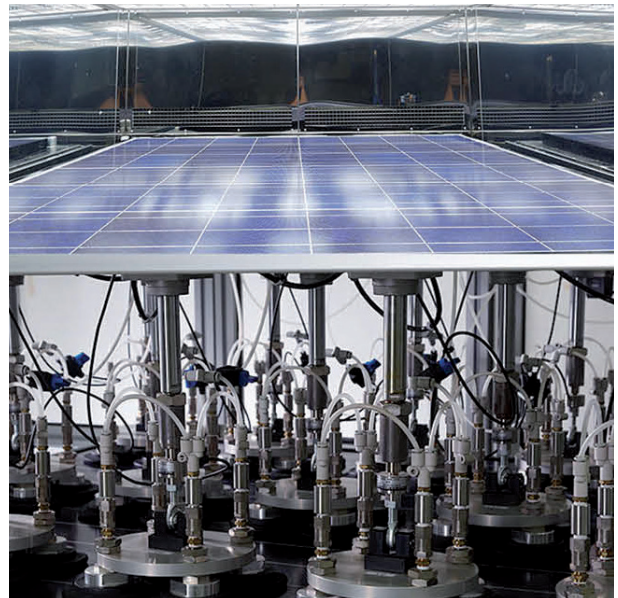
### 30 year linear power output guarantee on bifacial panels\*\*\*

Guaranteed minimum power output of 98% of P<sub>nom</sub> in the first year and minimum of 85% in year 30. 0.45% maximum annual degradation after the first year.

## Proven quality

### Provide reliable products which passed the hardest tests

Our extensive, discerning tests are based on decades of industry experience and are up to five times stricter than IEC standards demand. We know the typical module failures and can test new production materials accordingly to ensure our modules' top quality. From compliance with international standards to endurance under extreme conditions: our PV modules have been tested, certified and awarded by a number of independent institutions. Please check the current specific data sheet and related documents for available certificates for each product.



## Sleek black designs

### Satisfy your style conscious customers

With their black frames and black back sheets, our all-black monocrystalline panels offer a homogeneous and sleek design that blends in with a building's architecture.



Joint Forces  
for Solar



Certified



Certified



ISO14001  
certified



Top Brand  
PV Award

**PID**

PID  
free  
(IEC TS62804)



5,400 Pa  
Tested Snow Load  
(IEC 61215)



Ammonia Test  
(IEC62716)



Salt Mist Test  
(IEC61701)



Sand / Dust Test  
(IEC60068)

\*Applicable for current PV panels installed within the EU and additional listed countries. Please check the guarantee conditions for your area before purchasing

\*\*Applicable for NU-JC365B, NU-JC375, NU-JC400B, NU-JC410, NU-JD450 and NU-JD540 installed within the EU and additional listed countries. Please check the guarantee conditions for your area before purchasing.

\*\*\*Applicable for NB-JD540 installed within the EU and additional listed countries. Please check the guarantee conditions for your area before purchasing.

# Trust in over 50 million SHARP panels installed in every environment

SHARP PV products are being used around the world, in a wide range of applications and environments. From the mountains to the desert, from icy climates to extreme humidity and heat, our PV modules have proven robust and reliable, contributing to a better energy future everywhere.



**Nordic installations (heavy snow loads and up to -15°C)**



**Large scale projects**



**Solar car parks**



**Solar powered irrigation projects**



**Residential installations**



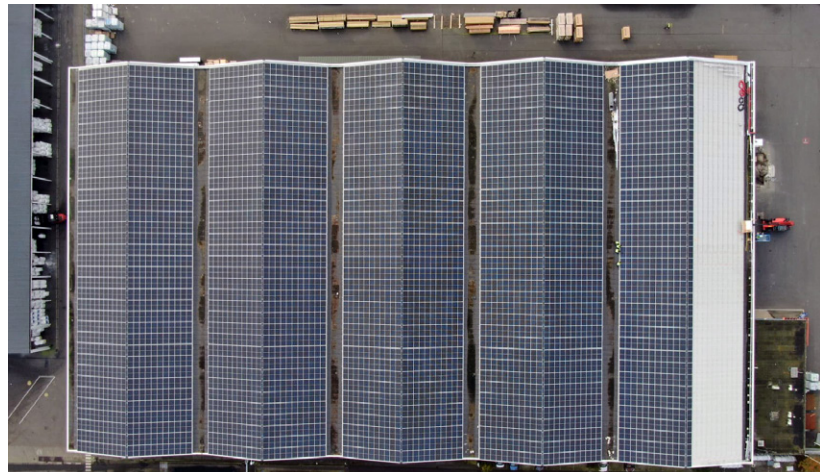




Seafront installations



Mountain installations (strong wind pressure)



Industrial installations



Desert installations (up to 50° C)

View case studies!  
[www.sharp.eu/case-studies](http://www.sharp.eu/case-studies)



Follow us!  
@SHARPSolarEMEA





# Contact us and we will be happy to assist



## Superior service based in Europe

Our solar service, sales, and support teams are based in Hamburg, Germany for more than 20 years. We like to be close to our customers and partners and have our stock close, too. That is why we operate from offices in Europe and have a warehouse here.



## Go Online!

Get in touch with us now and meet the team.  
[www.sharp.eu/contact-us](http://www.sharp.eu/contact-us)



## See what our clients have to say:

*"We chose SHARP for the sake of product quality, performance and guarantee. Its performance in our demanding and harsh weather conditions in Finland guarantees the best possible energy production compared to any other product we have used so far."*

**Antti Kostainen**  
PlayGreen, Finland

*"SHARP modules have proved highly dependable in the past, with a very good price-performance ratio. Over the almost seven years of our partnership with SHARP, they have been consistently reliable and supportive. It is clearly a win-win situation."*

**Sándor Harcsa-Pintér**  
3comm, Hungary



*"We've done more than 70 projects with SHARP modules so far. Their high quality and reliable guarantees give us great peace of mind."*



**Joan Grifé Singla**  
Seine Tech, Spain

*"Our relationship with SHARP Service can be described best by the number of issues we have had with SHARP products in the past 18 years: ZERO! This is statistically impossible and yet, true!"*

**Christos Pronios**  
Eurosol

*"All panels were delivered on time, which helped adhering our time schedule a lot and is required when installing 43,000 modules. Furthermore, the SHARP modules have exceeded our expectations in terms of quality and reliability. This was also confirmed by the great yields we generated so far."*

**Aldo Enerji**  
Akin Yalçın, Turkey

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Be Original.

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