HERO® BLACK

430W

PREMIUM

M10 N-TYPE SOLAR

MODULE

SOLARHERO

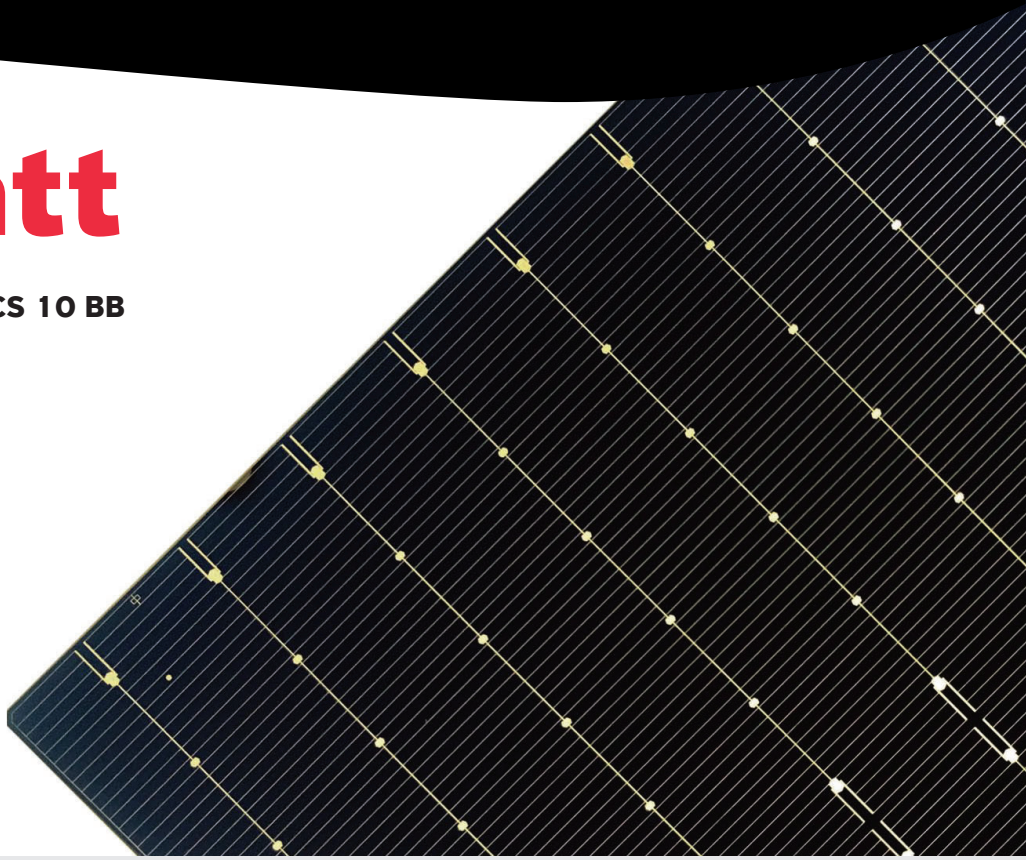
Hero® solar panels are manufactured in top quality by OEM rights of Solar Hero GmbH we are committed to making solar energy illuminate every corner of the Globe. We strive to provide high-efficiency, high-quality and affordable clean energy solutions. Solar Hero insists on continuous innovation according to customer needs. We invest our profit in technology research, and we promote green energy in Germany and all the EU.

HERO®BLACK

430 Watt

M10 N-TYPE HALF CELL 108 PCS 10 BB

TOP CATEGORY
24% CELL EFFICIENCY



SUPER POWER

MULTI BUSBAR 10 BB HALF CELL TECHNOLOGY
Stronger current consumption, special circuit design at much lower hot spot (HOT-SPOT) temperatures.

MODULE EFFICIENCY 21.94%
Higher power results in lower kWp costs, higher lifetime production capacity, and lower annual power reductions (degradation).

PID STANDARD TECHNOLOGY
Excellent PID resistance in a 96-hour (85% / 85%) test and can be improved to meet the higher performance of particularly harsh environments.

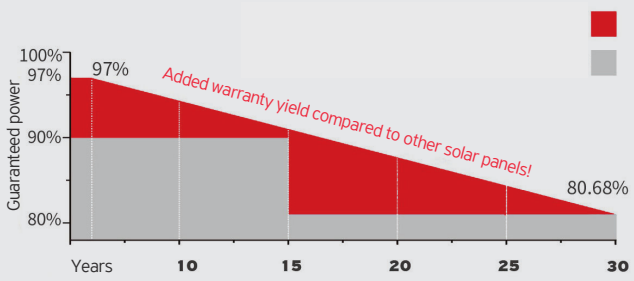
LOW-LIGHT OPTIMIZED CELL
Excellent power generation performance in low light conditions thanks to the multi BusBar.

SHADOW-RESISTANT SEMI-CELL TECHNOLOGY
Excellent micro-cracking proof cell structure with balanced internal load. Also partial shadow tolerance.

N-TYPE ZERO LID (Light Induced Degradation)
N-type solar cell has no LID naturally which can increase power generation.

LINEAR PERFORMANCE GUARANTEE

25-year product warranty · 30-year linear performance guarantee



PRODUCT AND QUALITY CERTIFICATES

OHSAS 18001:2007

Engineered in EU

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N-TYPE TECHNOLOGY

25 YEAR PRODUCT

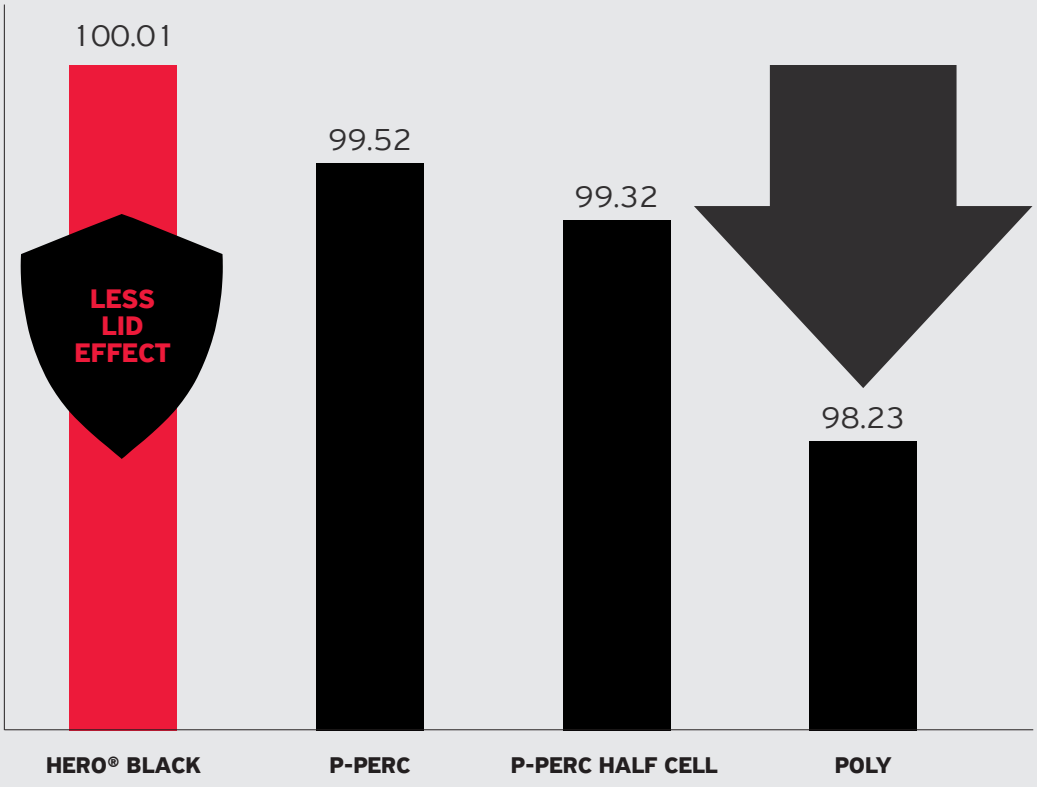
30 YEAR PERFORMANCE WARRANTY

PIONEERING TECHNOLOGY

N-type cell to reduce light-induced aging (LID). With N-type cells, the effect of light-induced aging (LID) is less with HERO® SOLAR MODULES than with P-type solar cells. The N-type mono PERC technology cell is more expensive and better than the standard P-type mono PERC solution.

LIGHT INDUCED DEGRADATION IN THE FIRST YEAR

Caused by light module performance after initial aging (LID) / initial module performance (%)

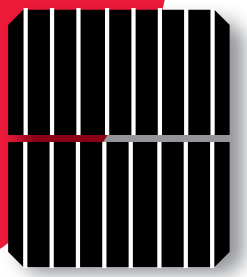


WITH N-TYPE SOLAR PERFORMANCE DOES NOT REDUCE BETWEEN 0.4% PER YEAR IN 30 YEARS!

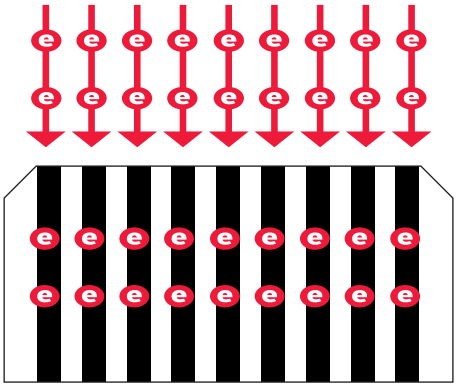
SOLARHERO

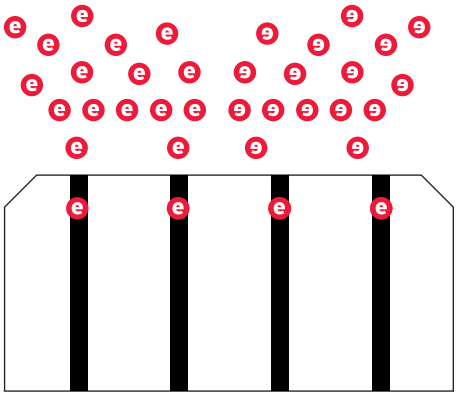
10 BUSBAR

- • greater current conductivity
- • longer service life
- • better heat dissipation
- • half-cell shadow tolerance
- • 30 years performance and 25 years product warranty



HALF CELL TECHNOLOGY





The soul of the solar panel is the Bus Wire quantity between the cells. More BusBar means more stable energy transmission over the years. Thus, the Hero series is made of the best "A" quality M10 cell and 10 guidewires (BusBar). Over the long years, it matters a lot if even 1 in 4 to 6 conductors detaches from the cell surface because the energy produced cannot pass through. In the case of 10 guide wires, this is not possible!

Cheaper solar panels save precisely on the number of the BusBars and the quality of the cell, so the customer has a risk of losing serious production after 10 years. In the case of 4-6 BB, a fault due to soldering or a change in cold and hot temperatures can cause a peeling from the cell's surface that causes is serious loss compared to a 10 busbar cell.

HALL CELL SHADING RESISTANT

92%

84%

76%

* EXPECTED PERFORMANCE WHEN COVERING A HALF CELL

HERO®BLACK&WHITE NAPELEM

Electrical Properties STC*

Product name	M10 10BB 430
Peak Power (Pmax) (W)	430
MPP Voltage (Vmp) (V)	32.3
MPP Current (Imp) (A)	13.32
Open Circuit Voltage (Voc) (V)	38.3
Short Circuit Current (Isc) (A)	14.12
Module Efficiency (%)	21.94

*STC: Irradiance 1000 W/m², Cell Temperature 25°C, AM1.5
The data above is for reference only and the actual data is in accordance with the pratical testing

Electrical Properties NOCT*

Product name	M10 10BB 430
Peak Power (Pmax) (W)	326
MPP Voltage (Vmp) (V)	30.3
MPP Current (Imp) (A)	10.74
Open Circuit Voltage (Voc) (V)	36.6
Short Circuit Current (Isc) (A)	11.38

*NOCT: Irradiance at 800 W/m², Ambient Temperature 20°C, Wind Speed 1 m/s

Operating Properties

Operating Temperature (°C)	-40°C~+85°C
Maximum System Voltage (V)	1500V (IEC)
Maximum Series Fuse Rating (A)	30
Power Tolerance	+/-5%

Temperature Coefficient

Temperature Coefficient of Pmax*	-0.310%/°C
Temperature Coefficient of Voc	-0.260%/°C
Temperature Coefficient of Isc	+0.046%/°C
Nominal Operating Cell Temperature (NOCT)	42±2°C

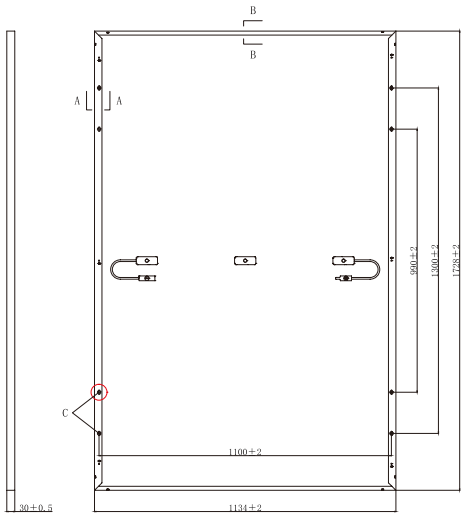
*Temperature Coefficient of Pmax±0.03%/°C

Mechanical Properties

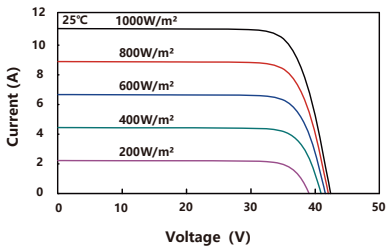
Cell Size	182.00mm*91.00mm
Number of Cells	108pcs(12*9)
Module Dimension	1728mm*1134mm*30mm
Weight	24.5kg
Front / Rear Glass*	3.0mm
Frame	Anodized Aluminium
Junction Box	IP68 (3 diodes)
Length of Cable	4.0mm², +1200mm/-1200mm
Csatlakozó	MC4

*Heat strengthened glass
*Cable length can be customized

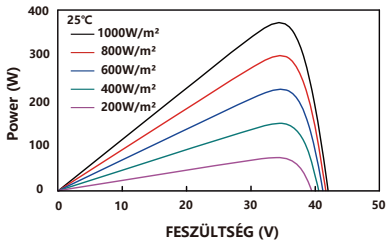
Engineering Drawing (mm)



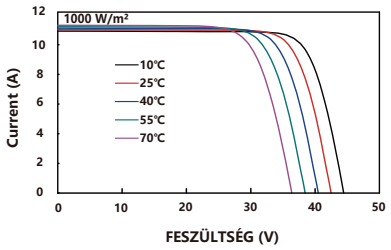
Characteristic Curves



I-V Characteristics
At Different Irradiations



P-V Characteristics
At Different Irradiations



I-V Characteristics
At Different Temperatures

SOLARHERO

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

C E R T I F I C A T E

No. Z2 118630 0001 Rev. 01

Holder of Certificate: **SOLAR HERO GmbH**
Rheinpromenade 11
40789 Monheim am Rhein
GERMANY

Certification Mark:

Product: **Crystalline Silicon Terrestrial Photovoltaic (PV) Modules**

Mono-crystalline Silicon Photovoltaic Module

The product was tested on a voluntary basis and complies with the essential requirements. The certification mark shown above can be affixed on the product. It is not permitted to alter the certification mark in any way. In addition, the certification holder must not transfer the certificate to third parties. This certificate is valid until the listed date, unless it is cancelled earlier. All applicable requirements of the testing and certification regulations of TÜV SÜD Group have to be complied. For details see: www.tuvsud.com/ps-cert

Test report no.: 701262219901-01

Valid until: 2028-01-15

Date, 2023-03-22

(Zhulin Zhang)

TÜV SÜD Product Service GmbH • Certification Body • Ridlerstraße 65 • 80339 Munich • Germany

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

C E R T I F I C A T E

No. Z2 118630 0001 Rev. 01

Model(s):

All electrical data is shown as relative to this test conditions: front side irradiance 1000 W/m², 25 °C, AM 1.5
SOLARHERO xxx-S1 (xxx=385-415, in steps of 5)
SOLARHERO xxx-S1 PRO1 (xxx=385-415, in steps of 5)
SOLARHERO xxx-S1 PRO2 (xxx=385-415, in steps of 5)
SOLARHERO xxx-S1-B (xxx=410-465, in steps of 5)
SOLARHERO xxx-S1-B PRO (xxx=410-465, in steps of 5)
SOLARHERO xxx-S2 (xxx=400-435, in steps of 5)
SOLARHERO xxx-S2 PRO1 (xxx=400-435, in steps of 5)
SOLARHERO xxx-S2 PRO2 (xxx=400-435, in steps of 5)
SOLARHERO xxx-S2-B (xxx=530-585, in steps of 5)
SOLARHERO xxx-S2-B PRO (xxx=530-585, in steps of 5)
xxx is standing for rated output power at STC.

Parameters:

Safety Class:	Class II
Max. System Voltage:	1500V DC
Test Laboratory:	Yangzhou Opto-Electrical Product Testing Institute No.10 West Kaifa Road, Yangzhou, 225009 Jiangsu P.R.China
Construction:	Framed or Frameless, with Junction box, cable and connector.
Fire Safety Class:	Class C according to UL790

Tested according to:

IEC 61215-1:2016
IEC 61215-1-1:2016
IEC 61215-2:2016
IEC 61730-1:2016
IEC 61730-2:2016
EN 61215-1:2016
EN 61215-1-1:2016
EN 61215-2:2017
EN IEC 61730-1:2018
EN IEC 61730-1:2018/AC:2018-06
EN IEC 61730-2:2018
EN IEC 61730-2:2018/AC:2018-06

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