



HERO®  
BLACK

**400W**

**PREMIUM**

**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

# 400 Watt

G1 N-TYPE HALF CELL 120 PCS 9BB

**TOP CATEGORY  
24% CELL EFFICIENCY**



**SUPER POWER**



#### MULTI BUSBAR 9BB HALF CELL TECHNOLOGY

Stronger current consumption, special circuit design at much lower hot spot (HOT-SPOT) temperatures.



#### MODULE EFFICIENCY 21.38%

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.

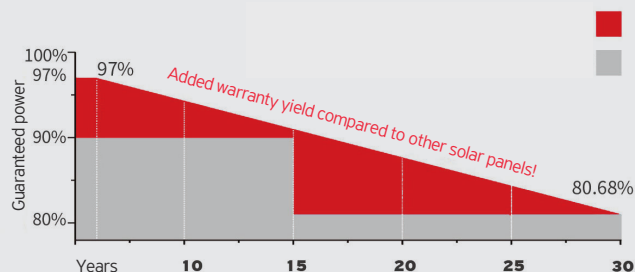


#### N-TYPE ZERO LID (Light Induced Degradation)

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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# HERO® BLACK

**N-TYPE TECHNOLOGY**  
**25 YEAR PRODUCT**  
**30 YEAR PERFORMANCE**  
**WARRANTY**

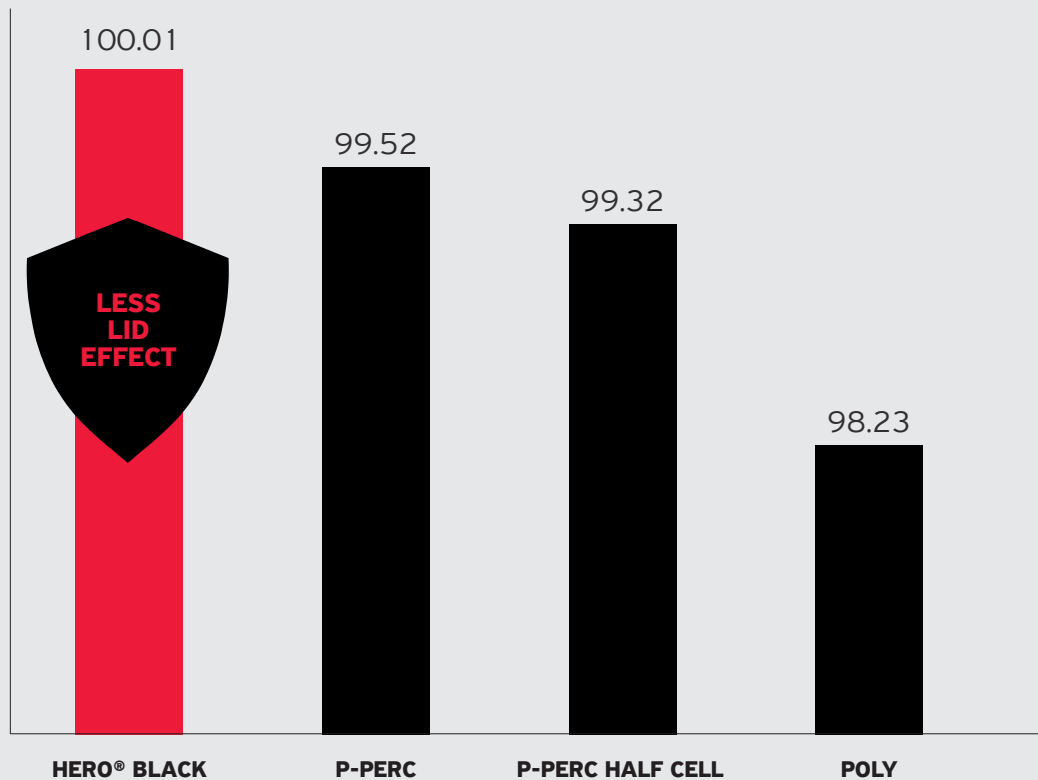


## PIONEERING TECHNOLOGY

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 (%)

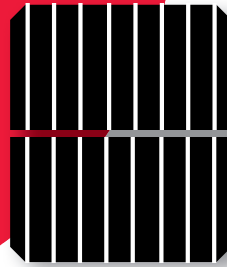


**WITH N-TYPE SOLAR PERFORMANCE DOES NOT REDUCE BETWEEN 0.4% PER YEAR IN 30 YEARS!**

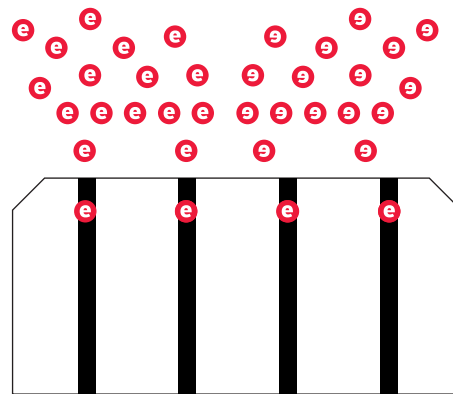
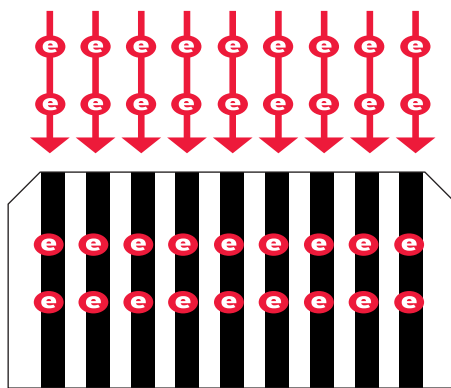


## 9 BUSBAR

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



## HALF CELL TECHNOLOGY

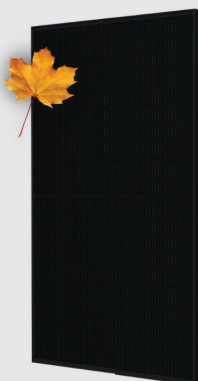


The soul of solar panels is the number and quality of the cell and the solder between them. Thus, the Hero series is made of the best "A" quality cell and 9 guidewires. Over the long years, it matters a lot if even 1 in 4 to 6 conductors detaches from the cell surface because the energy produced cannot pass through. In the case of 9 guide wires, this is not possible!

Cheaper solar panels save precisely on the number of solders and the quality of the cell, so both the distributor and the customer run the risk of reducing production after 10 years. In the case of 4-6 conductors, a fault due to soldering or a change in cold-heat can cause a serious loss compared to a 9 busbar cell.

## HALL CELL SHADING RESISTANT

**92%**



**84%**



**76%**





# HERO®BLACK&WHITE NAPELEM

## Electrical Properties STC\*

Product name	G1 9BB 400
Peak Power (Pmax) (W)	400
MPP Voltage (Vmp) (V)	34.2
MPP Current (Imp) (A)	11.70
Open Circuit Voltage (Voc) (V)	41.2
Short Circuit Current (Isc) (A)	12.28
Module Efficiency (%)	21.3

\*STC: Irradiance 1000 W/m<sup>2</sup>, Cell Temperature 25°C, AM1.5

The data above is for reference only and the actual data is in accordance with the practical testing

## Electrical Properties NOCT\*

Product name	G1 9BB 400
Peak Power (Pmax) (W)	302
MPP Voltage (Vmp) (V)	32.2
MPP Current (Imp) (A)	9.38
Open Circuit Voltage (Voc) (V)	38.8
Short Circuit Current (Isc) (A)	9.90

\*NOCT: Irradiance at 800 W/m<sup>2</sup>, 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)	25
Power Tolerance	+/-5%

## Temperature Coefficient

Temperature Coefficient of Pmax*	-0.320%/°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

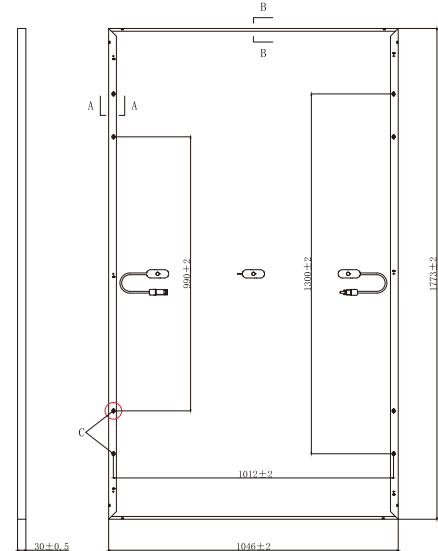
## Mechanical Properties

Cell Size	166.00mm*83.00mm
Number of Cells	120pcs(12*10)
Module Dimension	1773mm*1046mm*30mm
Weight	24kg
Front / Rear Glass*	3.0mm
Frame	Anodized Aluminium
Junction Box	IP68 (3 diodes)
Length of Cable	4.0mm <sup>2</sup> , +1200mm/-1200mm
Csatlakozó	MC4

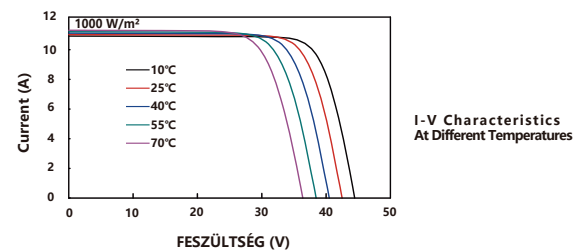
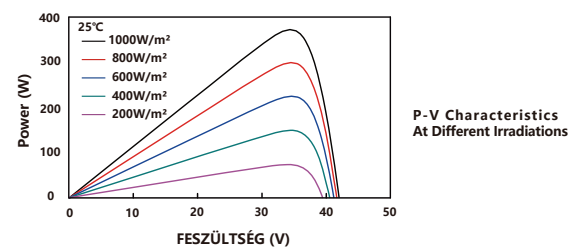
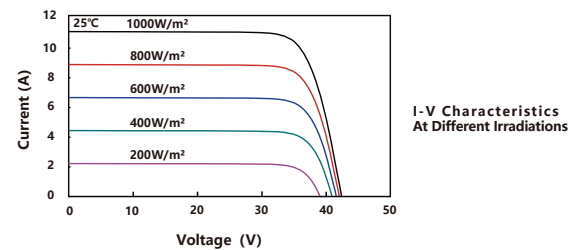
\*Heat strengthened glass

\*Cable length can be customized

## Engineering Drawing (mm)



## Characteristic Curves





Product Service

# CERTIFICATE

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](http://www.tuvsud.com/ps-cert)

**Test report no.:** 701262219901-01

**Valid until:** 2028-01-15

**Date,** 2023-03-22

( Zhulin Zhang )



# CERTIFICATE

No. Z2 118630 0001 Rev. 01

## Model(s):

All electrical data is shown as relative to this test conditions:  
front side irradiance 1000 W/m<sup>2</sup>, 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