



# ASTORIOS

per aspera ad astra

## FULL BLACK PHOTOVOLTAIC MODULE

ASTR 108HC-US Series 390-410Wp

HALF CUT PERC CELLS

**410 Wp**  
MAXIMUM POWER OUTPUT

**21.0%**  
MAXIMUM MODULE EFFICIENCY

**ASSEMBLED IN THE USA**



### MORE YIELD

PV modules are positive tolerance current lever sorted bringing to increase in energy yield and avoiding solar panel degradation due to mismatch



### HOT SPOTS RISK REDUCTION

Sophisticated electrical design, cells sorting, cutting and soldering technology leads to low hot spot risk and temperature control



### HIGH QUALITY GLASS

Additional yield and easy maintenance are provided by high transparent and self-cleaning glass



### MULTI BUSBAR TECHNOLOGY

Better light absorption and current collection for better power output



### MINIMIZING THE SHADING IMPACT

Better partial-shade tolerance due to separated half panel string wiring



### PID RESISTANT

Selected encapsulants, precision in manufacturing quality control makes modules highly PID resistant and snail trails free



### SAND, AMMONIA AND SALT MIST RESISTANCE

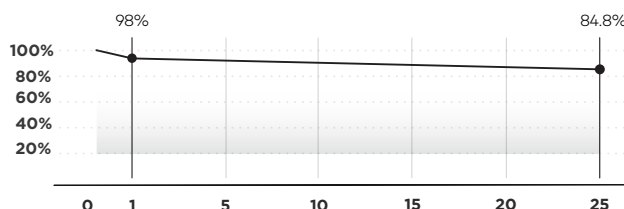
Sand blowing, ammonia and salt mist resistance tests have been passed by international standards to ensure operation in harsh conditions



### SUPERIOR SAFETY AND RELIABILITY

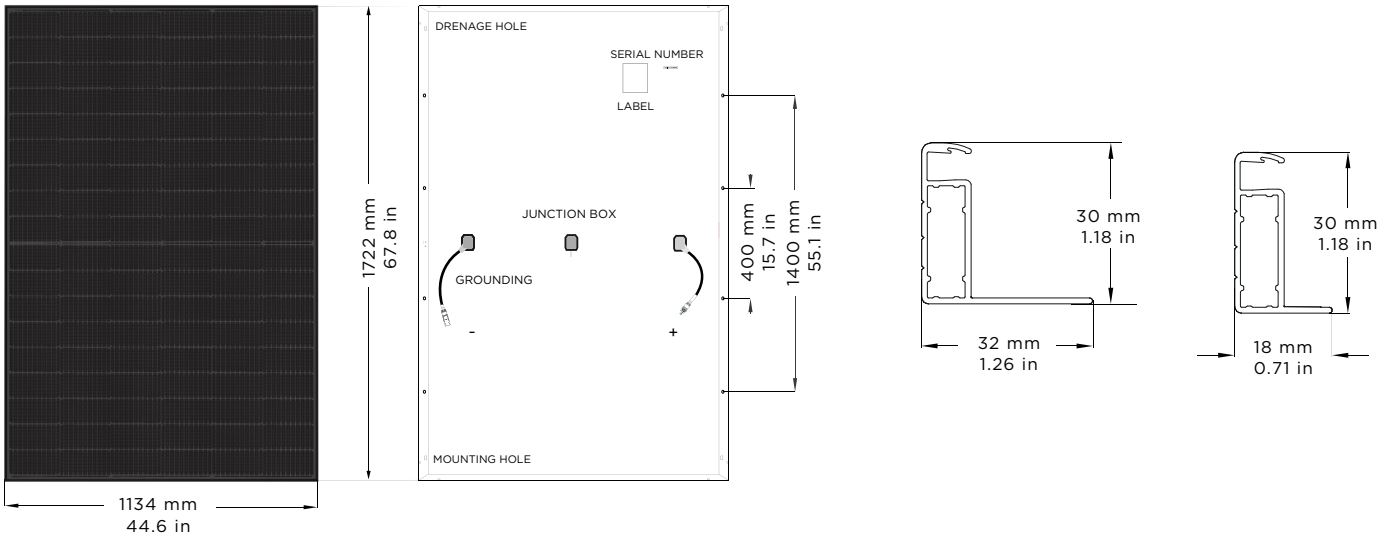
Tested to avoid microcracks and welding cracks, can withstand high pressure loads, passed multi-step quality control

### PERFORMANCE



**25 YEARS**  
**EXTENDED WARRANTY**

TERMS AND CONDITIONS APPLY



## MATERIAL CHARACTERISTICS

Dimensions	67.8 × 44.6 × 1.2 in / 1722 x 1134 x 30 mm
Weight	45.2 lbs / 20.5 kg
Glass front/back	3.2 mm, High transparency, AR coated
Number of cells	108 pcs (6x18)
Frame	Black color, Anodized aluminum alloy
Junction box	IP68 Rated, 3 bypass diodes
Connector type	Staubli MC4 / MC4 compatible
Cable	13.78 in / 350 mm, 4 mm <sup>2</sup>

## TEMPERATURE PARAMETERS

Temperature Coefficient of Pmax	-0.35 % / °C
Temperature Coefficient of Voc	-0.29 % / °C
Temperature Coefficient of Isc	+0.046 % / °C
Operating Temperature	-40°F to + 185°F / -40°C to + 85°C
Normal Operating Cell Temperature (NOCT)	44±2°C

## MAXIMUM RATINGS

Max. System Voltage	1500V DC
Max. Series Fuse Rating	25 A
Uplift load (wind)	2400 Pa*
Downforce load (snow)	5400 Pa*

\*For more information please refer to Instruction Manual

## PACKAGING INFORMATION

One pallet quantity	36 pcs
40 ft HC/HQ container	936 pcs

MODULE TYPE 108HC-US	390 Wp		395 Wp		400 Wp		405 Wp		410 Wp	
	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
<b>ELECTRICAL CHARACTERISTICS</b>										
Maximum power (Pmax / Wp)	390	291.50	395	295.20	400	299.00	405	302.70	410	306.30
Open circuit voltage (Voc / V)	36.70	34.30	36.90	34.50	37.10	34.70	37.30	34.80	37.50	35.00
Short circuit current (Isc / A)	13.56	10.95	13.63	11.01	13.70	11.06	13.77	11.12	13.84	11.18
Maximum power voltage (Vmp / V)	30.50	28.30	30.70	28.50	30.90	28.70	31.10	28.90	31.30	29.10
Maximum power current (Imp / A)	12.79	10.29	12.87	10.35	12.95	10.41	13.03	10.47	13.10	10.53
Module efficiency at STC (ηm / %)	19.97		20.23		20.48		20.74		21.00	
Power tolerance (Pmax)	(0,+5) Wp									

STC: Irradiance of 1000 W/m<sup>2</sup> with spectrum AM 1.5 and a module temperature of 25°C

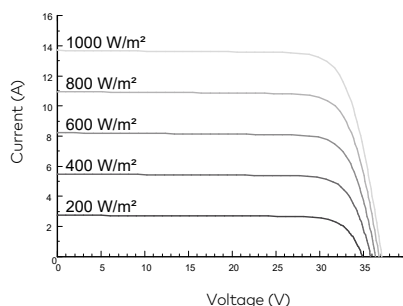
NMOT: Irradiance 800 W/m<sup>2</sup>, ambient temperature 20°C and wind speed 1 m/s

## CERTIFICATES

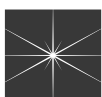
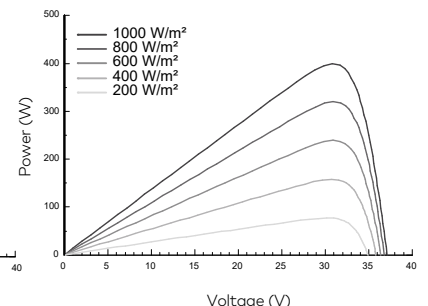
ISO 14001: Environmental Management System  
 ISO 9001: Quality Management System  
 ISO 45001: Occupational Health and Safety Management System  
 IEC 61215 / IEC 61730/ IEC 61701 / IEC 62716  
 UL 61730



I-V Curves (400 W)  
Cell Temperature 25°C



P-V Curves at Different Irradiation (400 W)  
Cell Temperature 25°C



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