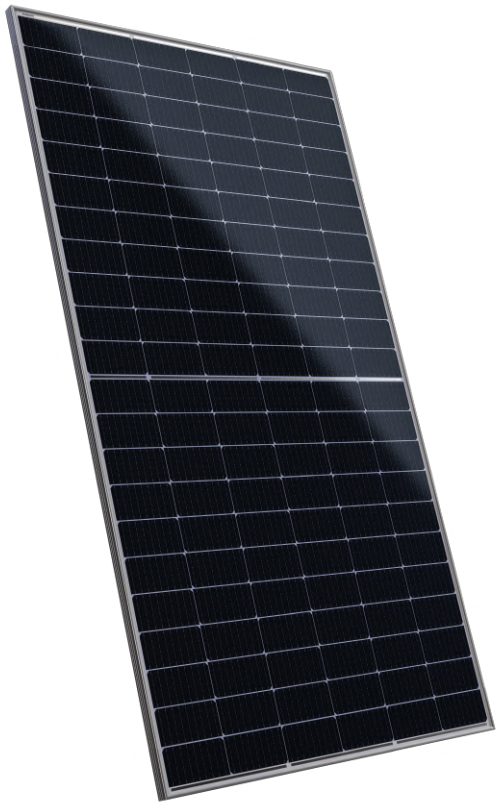

ASTORIOS

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BIFACIAL, DOUBLE GLASS PHOTOVOLTAIC MODULE

ASTR **132 HCD/12** Series **670-680 Wp**

HALF CUT PERC CELLS

680 Wp
MAXIMUM POWER OUTPUT

21.9%
MAXIMUM MODULE EFFICIENCY

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

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

MINIMIZING THE SHADING IMPACT
Better partial-shade tolerance due to separated half panel string wiring

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

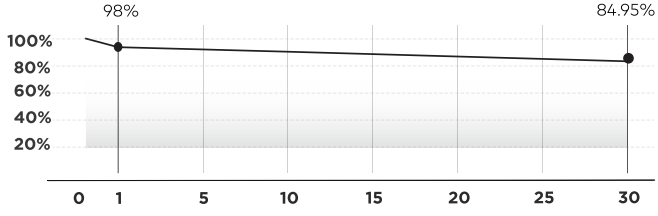
HOT SPOTS RISK REDUCTION
Sophisticated electrical design, cells sorting, cutting and soldering technology leads to low hot spot risk and temperature control

MULTI BUSBAR TECHNOLOGY
Better light absorption and current collection for better power output

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

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

PERFORMANCE



30 YEARS
Performance Guarantee

15 YEARS
Product Warranty

info@astorios.com
www.astorios.com

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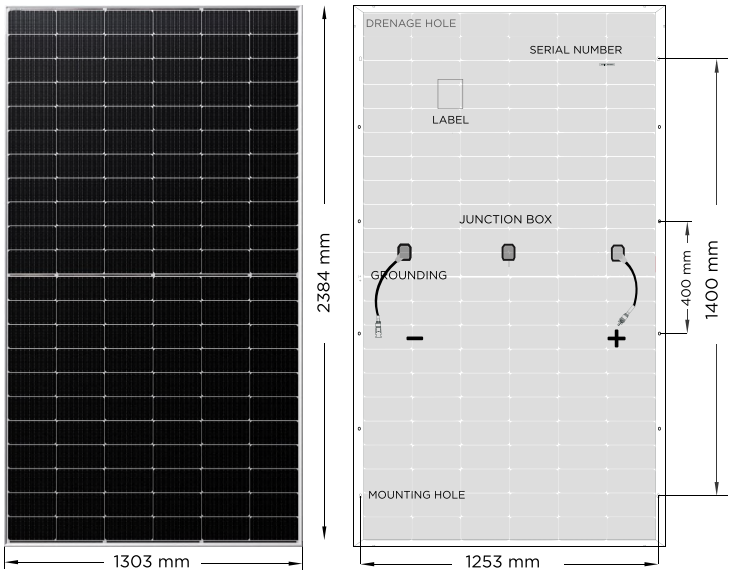
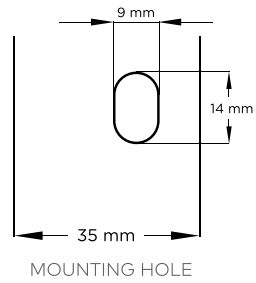
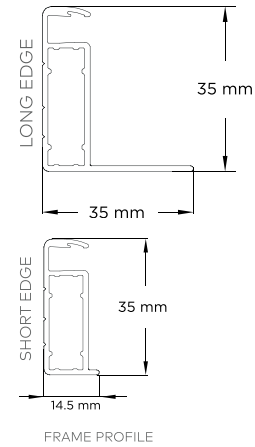






MATERIAL CHARACTERISTICS

Dimensions	2384 × 1303 × 35 mm
Weight	38.7kg
Number of cells	132 pcs (6x22)
Glass front/back	2mm, High transparency, AR coated
Cell layout	Bifacial, Half Cut PERC 12BB
Frame	Silver color, anodized aluminum alloy
Junction box	IP68 Rated, 3 bypass diodes
Connector type	Staubli MC4-Evo 2 / MC4 (Original)
Cable	4 mm^2, 300 mm

PACKAGING INFORMATION

One pallet quantity	31 pcs
40 ft HC/HQ container	558 pcs

TEMPERATURE PARAMETERS

Temperature Coefficient of Pmax	-0.35 % / °C
Temperature Coefficient of Voc	-0.27 % / °C
Temperature Coefficient of Isc	+0.048 % / °C
Operating Temperature	- 40°C to + 85°C
Normal Operating Cell Temperature (NOCT)	44±2°C

MAXIMUM RATINGS

Max. System Voltage	1500V DC - (H)
Max. Series Fuse Rating	35A
Uplift load (wind)	2400 Pa*
Downforce (snow)	5400 Pa*

*For more information please refer to Instruction Manual

MODULE TYPE 132HCD/12	670 Wp		675 Wp		680 Wp	
ELECTRICAL CHARACTERISTICS	**STC**	NMOT	**STC**	NMOT	**STC**	NMOT
Maximum power (Pmax/Wp)	**670**	509	**675**	513	**680**	517
Open circuit voltage (Voc / V)	**46.00**	43.40	**46.20**	43.60	**46.40**	43.80
Short circuit current (Isc / A)	**18.65**	15.00	**18.70**	15.04	**18.75**	15.08
Maximum power voltage (Vmp / V)	**38.20**	35.70	**38.40**	35.90	**38.60**	36.10
Maximum power current (Imp / A)	**17.54**	14.27	**17.58**	14.30	**17.62**	14.33
Module efficiency at STC (ηm / %)	**21.50**		**21.70**		**21.90**	
Power tolerance (Pmax)			**0~+3%**			

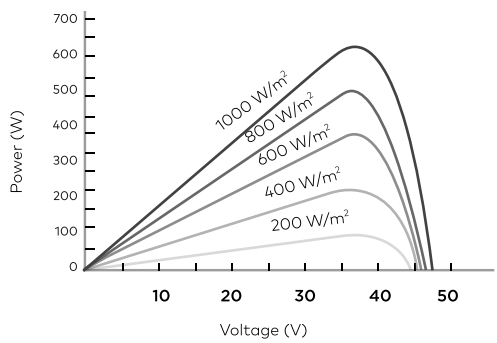
NMOT: Irradiance 800 W/m2, ambient temperature 20°C and wind speed 1 m/s

STC: Irradiance of 1000 W/m2 with spectrum AM 1.5 and a module temperature of 25°C

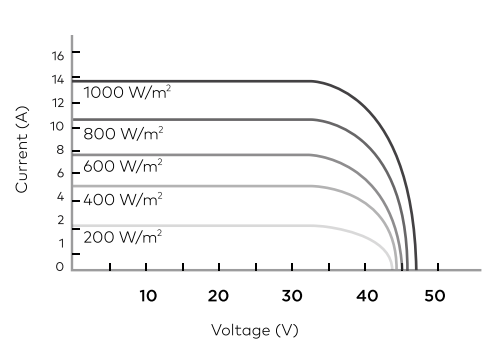
CERTIFICATES

IEC62716 (Ammonia)
IEC60068-2-68 (Sand)
IEC61215 / 61730 / 61701

P-V Curve at Different Irradiation (660 W)



I-V Curve (660 W)



ASTORIOS Holding Inc.
16192 Coastal Highway, Lewes,
Delaware 19958, USA
info@astorios.com