

# ASTORIOS

per aspera ad astra



## ULTRA BLACK HIGH EFFICIENCY PHOTOVOLTAIC MODULE

ASTR 80HCN/12 Series 410-420 Wp

TOPCON N-TYPE HALF CUT CELLS

**420 Wp**

MAXIMUM POWER OUTPUT

**21.8%**

MAXIMUM MODULE EFFICIENCY



### NEGLECTIBLE LID IMPACT

TOPCon cells exhibit an almost zero susceptibility to Light Induced Degradation, ensuring sustained high efficiency over time despite exposure to sunlight



### HOT SPOTS RISK REDUCTION

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



### HIGH EFFICIENCY

N-type cells technology provides the highest efficiency modern multi busbar configuration at affordable cost



### 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

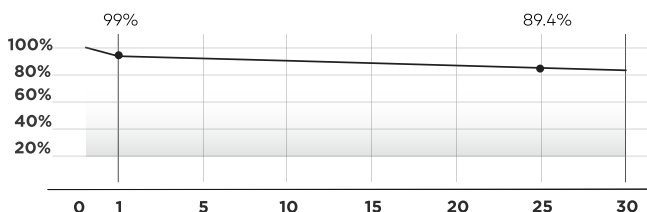
Sand blowing, ammonia and salt mist resistance tests have been passed by international standards to ensure operation in harsh conditions



### SUPERIOR SAFETY AND RELIABILITY

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

## PERFORMANCE

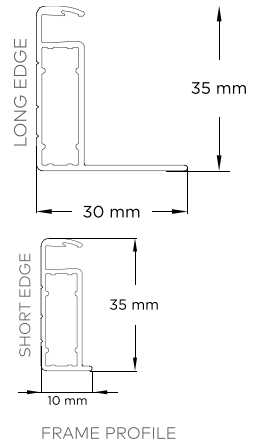
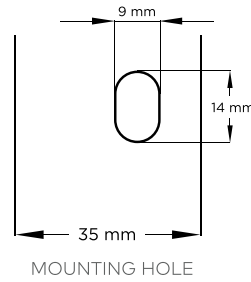
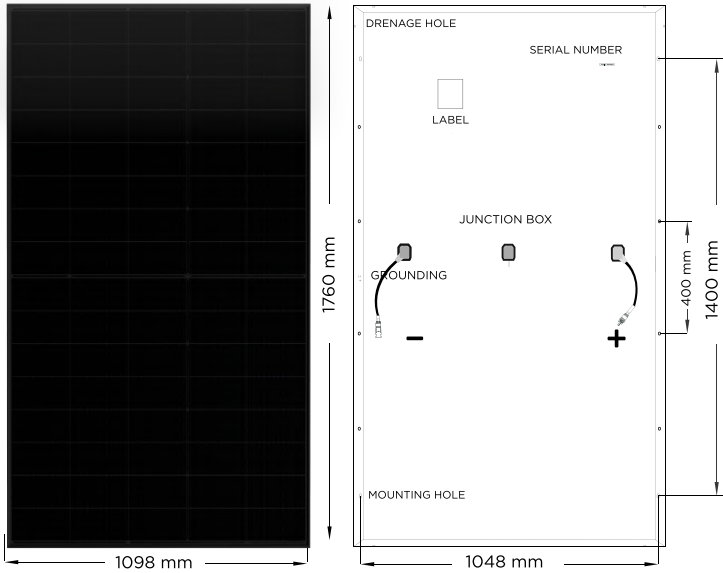


**30 YEARS**

Performance Guarantee

**15 YEARS**

Product Warranty



## MATERIAL CHARACTERISTICS

Dimensions	1760 x 1098 x 35 mm
Weight	21.5kg
Number of cells	80 pcs (5x16)
Glass	3.2mm, High transparency, AR coated
Cell layout	Mono-crystalline, Half Cut N-Type 18BB (210 mm)
Frame	Black color, anodized aluminum alloy
Junction box	IP68 Rated, 3 bypass diodes
Connector type	Staubli MC4-Evo 2 / MC4 (Original)
Cable	4 mm <sup>2</sup> , 300 mm

## TEMPERATURE PARAMETERS

Temperature Coefficient of Pmax	-0.30 % / °C
Temperature Coefficient of Voc	-0.25 % / °C
Temperature Coefficient of Isc	+0.046 % / °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*

## PACKAGING INFORMATION

One pallet quantity	31 pcs
40 ft HC/HQ container	806 pcs

\*For more information please refer to Instruction Manual

MODULE TYPE 80HCN/12	410 Wp		415 Wp		420 Wp	
	STC	NMOT	STC	NMOT	STC	NMOT
<b>ELECTRICAL CHARACTERISTICS</b>						
Maximum power (Pmax/Wp)	410	312	415	316	420	320
Open circuit voltage (Voc / V)	28.80	26.73	29.00	26.93	29.20	27.13
Short circuit current (Isc / A)	18.06	14.75	18.11	14.80	18.16	14.85
Maximum power voltage (Vmp / V)	24.00	22.49	24.20	22.69	24.40	22.89
Maximum power current (Imp / A)	17.08	13.87	17.15	13.92	17.21	13.97
Module efficiency at STC (ηm / %)	21.30		21.50		21.80	

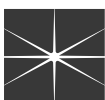
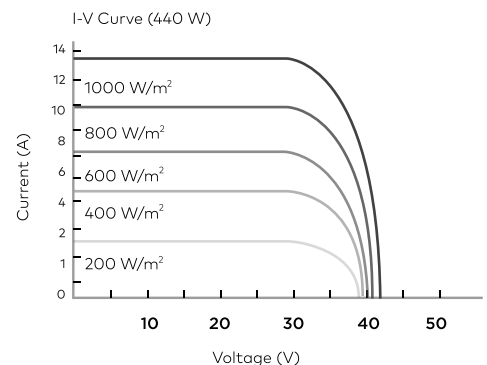
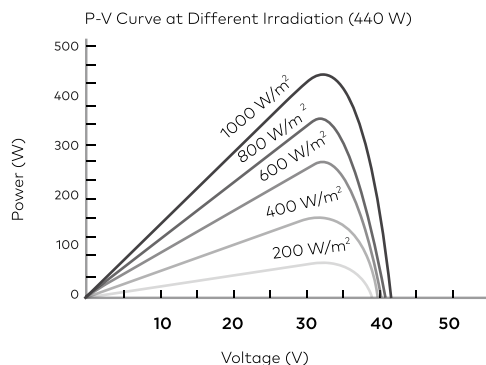
## Power tolerance (Pmax)

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

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

## CERTIFICATES

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



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