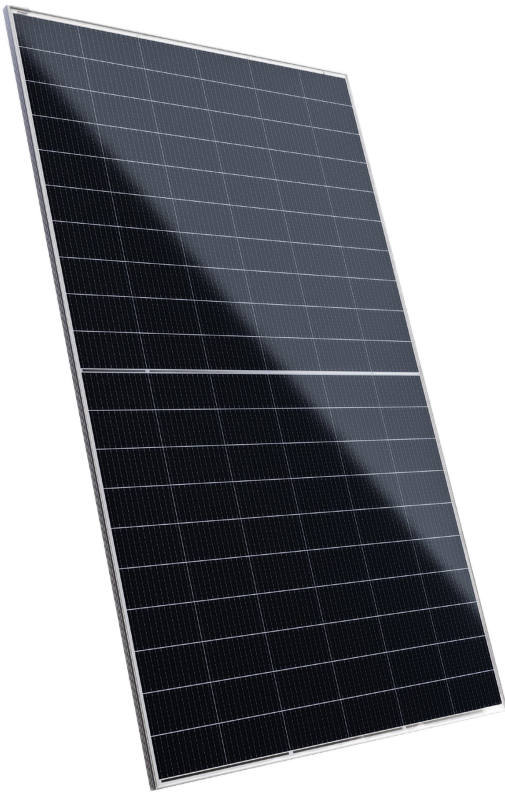


ASTORIOS

per aspera ad astra



PHOTOVOLTAIC MODULE

ASTR 120 HC/10 Series 455-465 Wp

HALF CUT PERC CELLS

465 Wp

MAXIMUM POWER OUTPUT

21.6%

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



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

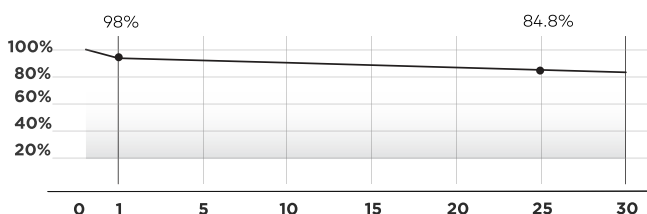
Sand blowing, ammonia and salt mist resistance tests have been passed by international standards to ensure operation in harsh conditions



SUPERIOR SAFETY AND RELIABILITY

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

PERFORMANCE

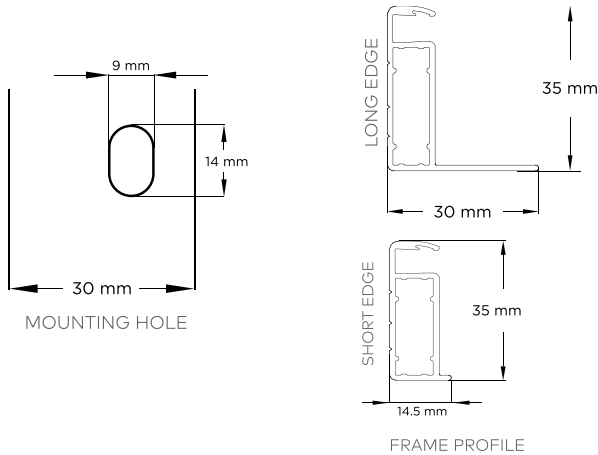
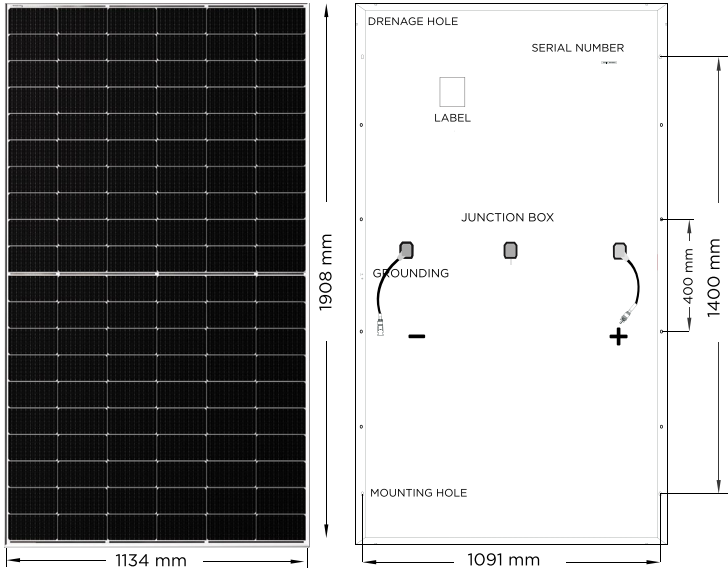


30 YEARS

Performance Guarantee

15 YEARS

Product Warranty



MATERIAL CHARACTERISTICS

Dimensions	1908 x 1134 x 35 mm
Weight	24.03kg
Number of cells	120 pcs (6x20)
Glass	3.2mm, High transparency, AR coated
Cell layout	Mono-crystalline, Half Cut N-Type 9/10BB (182 mm)
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

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	25A
Uplift load (wind)	2400 Pa*
Downforce (snow)	5400 Pa*

PACKAGING INFORMATION

One pallet quantity	31 pcs
40 ft HC/HQ container	744 pcs

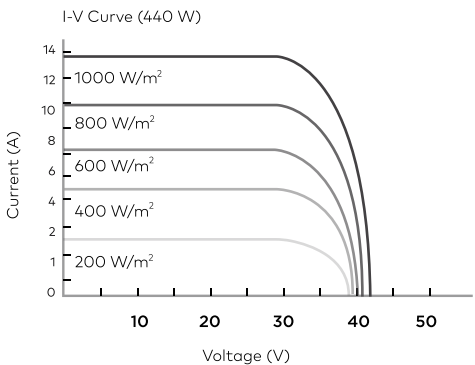
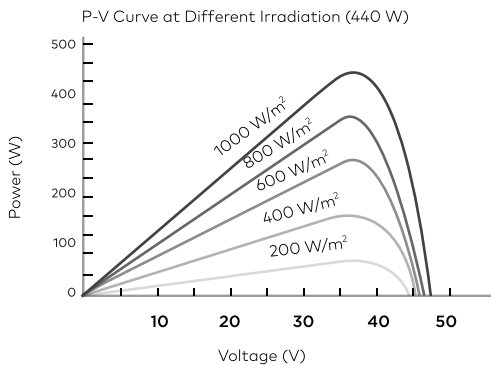
*For more information please refer to Instruction Manual

MODULE TYPE 120HC/10	455 Wp		460 Wp		465 Wp	
	STC	NMOT	STC	NMOT	STC	NMOT
ELECTRICAL CHARACTERISTICS						
Maximum power (Pmax/Wp)	455	339	460	343	465	347
Open circuit voltage (Voc / V)	41.33	39.29	41.48	39.35	41.62	39.41
Short circuit current (Isc / A)	13.93	11.26	14.01	11.37	14.09	11.48
Maximum power voltage (Vmp / V)	34.06	31.97	34.20	32.02	34.32	32.07
Maximum power current (Imp / A)	13.36	10.60	13.45	10.70	13.55	10.79
Module efficiency at STC (ηm / %)	21.20		21.40		21.60	
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



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