

ASTORIOS

per aspera ad astra

BIFACIAL, DOUBLE GLASS PHOTOVOLTAIC MODULE

ASTR 132HCD/12 Series 645-675 Wp

HALF CUT PERC CELLS

675 Wp
MAXIMUM POWER OUTPUT

21.7 %
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

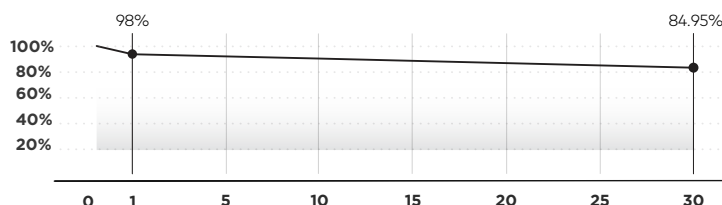
Sand blowing, ammonia and salt mist resistance tests have been passed by international standards to ensure operation in harsh conditions



SUPERIOR SAFETY AND RELIABILITY

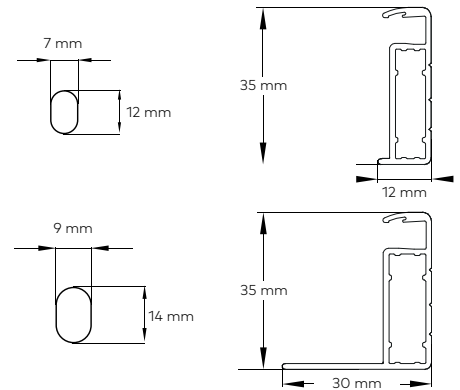
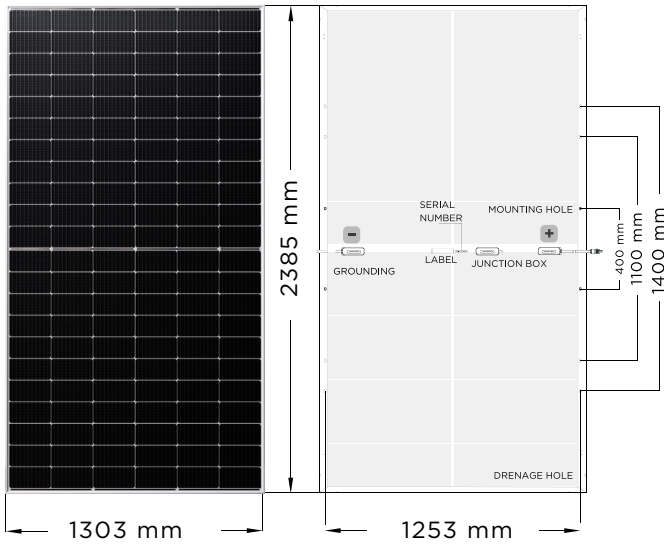
Tested to avoid microcracks and welding cracks, can withstand high pressure loads, passed multi-step quality control

PERFORMANCE



30 YEARS
Performance Guarantee

15 YEARS
Product Warranty



MATERIAL CHARACTERISTICS

Dimensions	2385 x 1303 x 35 mm
Weight	38.7 kg
Number of cells	132 pcs (6x22)
Cells	Bifacial, Half Cut PERC 12BB (210 mm)
Bifaciality	70±5%
Glass front/back	2 mm High Transparency Solar Glass
Frame	Silver color, Anodized aluminum alloy
Junction box	IP68, 3 diodes
Connector type	Staubli MC4-Evo 2 / MC4 (Original)
Cable	4 mm ² , 300 mm

TEMPERATURE PARAMETERS

Temperature Coefficient of Pmax	-0.34 % / °C
Temperature Coefficient of Voc	-0.25 % / °C
Temperature Coefficient of Isc	+0.04 % / °C
Operating Temperature	-40°C to +85 °C
Normal Operating Cell Temperature (NOCT)	43±2°C

MAXIMUM RATINGS

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

*For more information please refer to Instruction Manual

PACKAGING INFORMATION

One pallet quantity	31 pcs
Module Per Box	558 pcs

MODULE TYPE	132HCD/12		645 Wp		650 Wp		655 Wp		660 Wp		665 Wp		670 Wp		675 Wp	
	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
ELECTRICAL CHARACTERISTICS																
Maximum power (Pmax / Wp)	645	488	650	492	655	496	660	500	665	504	670	509	675	513		
Open circuit voltage (Voc / V)	45.0	42.4	45.2	42.6	45.4	42.8	45.6	43.0	45.8	43.2	46.0	43.4	46.2	43.6		
Short circuit current (Isc / A)	18.41	14.81	18.46	14.85	18.50	14.88	18.55	14.92	18.60	14.96	18.65	15.00	18.70	15.04		
Maximum power voltage (Vmp / V)	37.2	34.7	37.4	34.9	37.6	35.1	37.8	35.3	38.0	35.5	38.2	35.7	38.4	35.9		
Maximum power current (Imp / A)	17.34	14.05	17.38	14.09	17.42	14.13	17.46	14.18	17.50	14.22	17.54	14.27	17.58	14.31		
Module efficiency at STC (ηm / %)	20.7		20.9		21.0		21.2		21.4		21.5		21.7			
5%*	Maximum power (Pmax / Wp)	677.2	682.5	687.7	693.0	698.2	703.7	708.7								
	Module efficiency at STC (ηm / %)	21.79	21.96	22.13	22.29	22.46	22.63	22.80								
15%*	Maximum power (Pmax / Wp)	741.7	747.5	753.2	759.0	764.7	770.5	776.2								
	Module efficiency at STC (ηm / %)	23.86	24.05	24.23	24.42	24.60	24.79	24.97								
25%*	Maximum power (Pmax / Wp)	806.2	812.5	818.7	825.0	831.2	837.5	843.7								
	Module efficiency at STC (ηm / %)	25.94	26.14	26.34	26.54	26.74	26.94	27.15								
Power tolerance (Pmax) (0,+5) Wp																

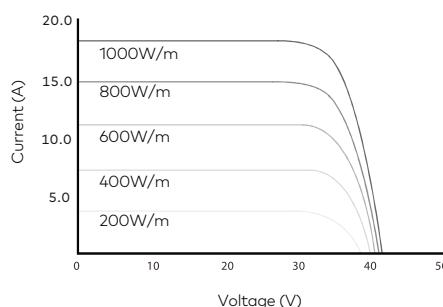
STC: Irradiance of 1000 W/m² with spectrum AM 1.5 and a module temperature of 25°C
 NMOT: Irradiance 800W/m², ambient temperature 20°C and wind speed 1 m/s

CERTIFICATES

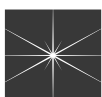
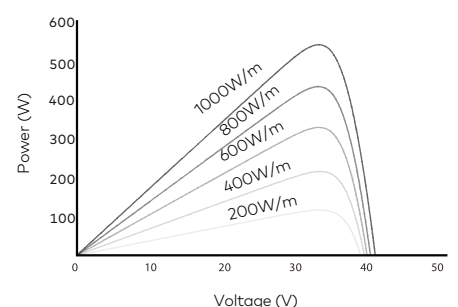
- IEC 62716 (Ammonia)
- IEC 60068-2-68 (Sand)
- IEC 61701 (Salt)
- IEC 61215 / 61730



I-V Curve at Different Temperature (645 W)



P-V Curve (645 W)



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