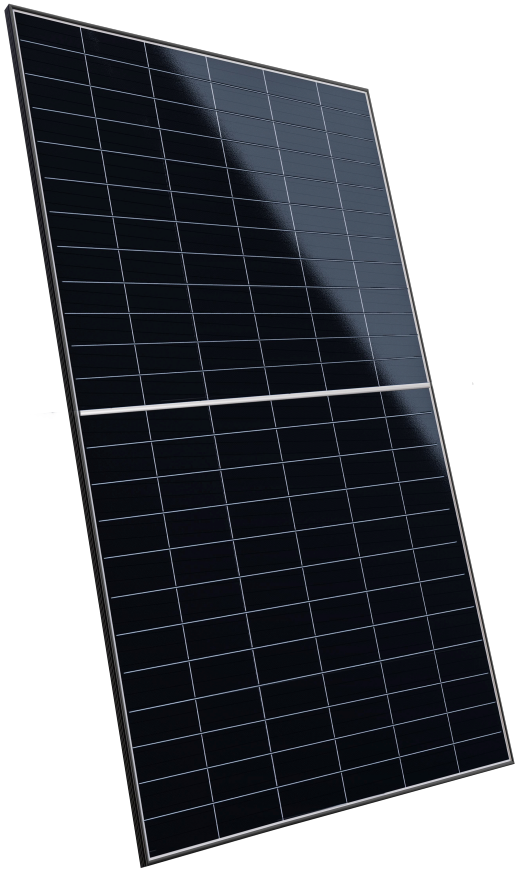

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PHOTOVOLTAIC MODULE

BACK-CONTACT
N-IBC MONO BIFACIAL CELLS
SILVER FRAME

ASTR **144HCNB/10** Series **660-670 Wp**

670 Wp
MAXIMUM POWER OUTPUT

24.80%
MAXIMUM MODULE EFFICIENCY

BACK-CONTACT
Utilizes back contact technology to enhance light absorption, minimize internal current loss and deliver higher power output

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

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

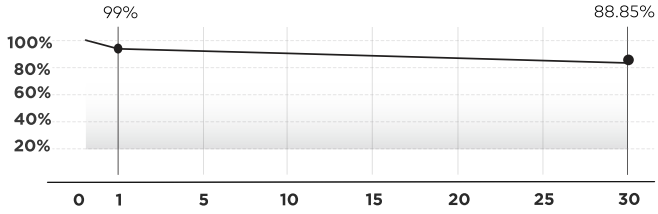
HOT SPOTS RISK REDUCTION
Sophisticated electrical design, cells sorting, cutting and soldering technology leads to low hot spot risk and temperature control

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

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

20 YEARS
Product Warranty

info@astorios.com
www.astorios.com

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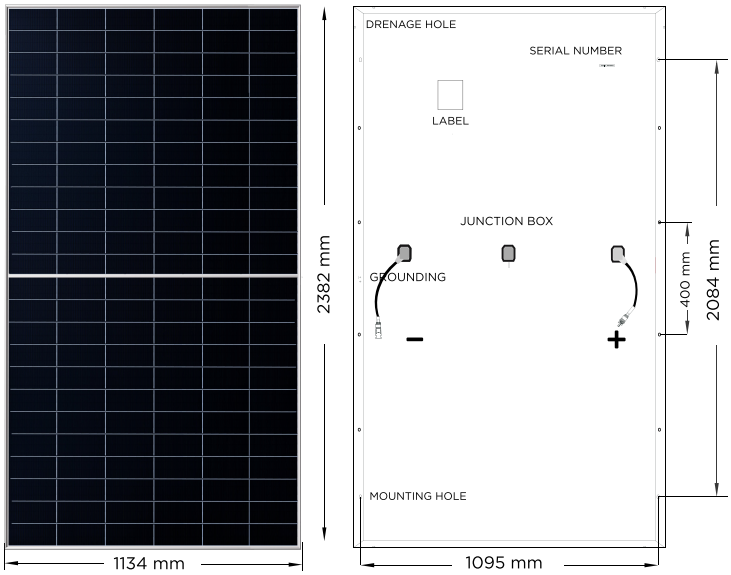
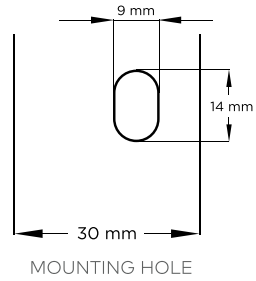
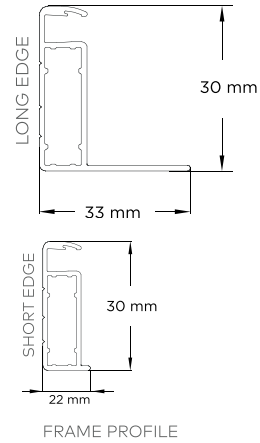






MATERIAL CHARACTERISTICS

Dimensions	2382 × 1134 × 30 mm
Weight	27.6kg
Number of cells	144 pcs (96x182)
Glass	3.2mm, High transparency, AR coated
Cell layout	Bifacial, N-IBC Mono
Frame	Silver frame, anodized aluminum alloy
Junction box	IP68 Rated, 3 bypass diodes
Connector type	Staubli MC4-Evo 2 / MC4 (Original)
Cable	4 mm², 300 mm

PACKAGING INFORMATION

One pallet quantity	36 Pcs / 1034kg / 2410x1120x1247mm
40 ft HC/HQ container	576 Pcs / 36 Pallets

TEMPERATURE PARAMETERS

Temperature Coefficient of Pmax	-0.26 % / °C
Temperature Coefficient of Voc	-0.22 % / °C
Temperature Coefficient of Isc	+0.05 % / °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	30A
Uplift load (wind)	2400 Pa*
Downforce (snow)	5400 Pa*
Hail Resistance	25mm ice-ball with velocity of 23m/s

*For more information please refer to Instruction Manual

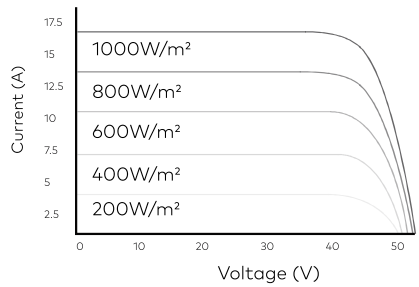
MODULE TYPE 144HCNB/10	660 Wp		665 Wp		670 Wp	
ELECTRICAL CHARACTERISTICS	**STC**	NMOT	**STC**	NMOT	**STC**	NMOT
Maximum power (Pmax/Wp)	**660**	507	**665**	511	**670**	515
Open circuit voltage (Voc / V)	**54.10**	51.72	**54.23**	51.86	**54.36**	51.92
Short circuit current (Isc / A)	**15.27**	12.32	**15.34**	12.37	**15.41**	12.43
Maximum power voltage (Vmp / V)	**45.33**	42.80	**45.43**	42.91	**45.52**	43.01
Maximum power current (Imp / A)	**14.56**	11.85	**14.64**	11.91	**14.72**	11.98
Module efficiency at STC (ηm / %)	**24.43**		**24.62**		**24.80**	
Power tolerance (Pmax)			**0~+3%**			

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

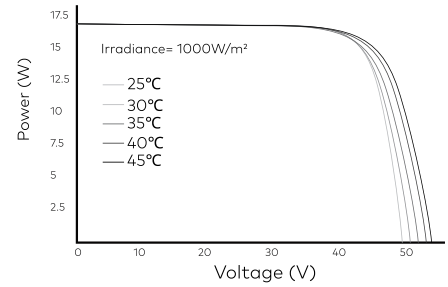
CERTIFICATES

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

I-V Curve at Different Temperature (665 W)



P-V Curve



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