



ASTORIOS

per aspera ad astra

ULTRA BLACK BIFACIAL, DOUBLE GLASS PHOTOVOLTAIC MODULE

ASTR IBC-132BD Series 410-420 Wp

N-TYPE
INTERDIGITATED BACK CONTACT CELLS

420 Wp
MAXIMUM POWER OUTPUT

21.3 %
MAXIMUM MODULE EFFICIENCY



IBC TECHNOLOGY

Interdigitated Back Contact cells technology is the most advanced technology in the market available for the serial manufacturing with the highest efficiency



MORE POWER GAIN

7% more accumulated power gain in 25 years, proved by TUV NORD test



PROVEN RELIABILITY

PV module top performer technology according to PVEL 2021 / 2022 reliability scorecard



HIGH DENSITY

19.88% more power generation from the same area compared to conventional panels



HIGH TEMPERATURE RESISTANCE

30-50% less losses in power generation in high temperature conditions operation due to optimized temperature coefficient $-0.29\% / ^\circ\text{C}$



MINIMIZING THE SHADING IMPACT

Outstanding performance in partial shaded conditions comparing to other technologies



HOT SPOTS REDUCTION

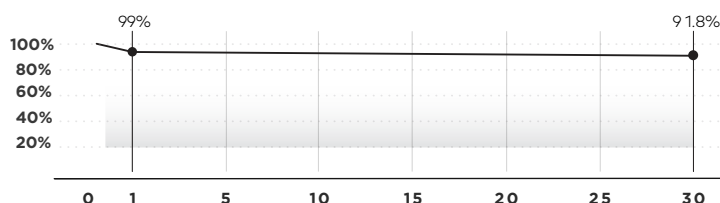
Distributed junction design makes IBC control operating temperature and avoid hot spots



NO LID

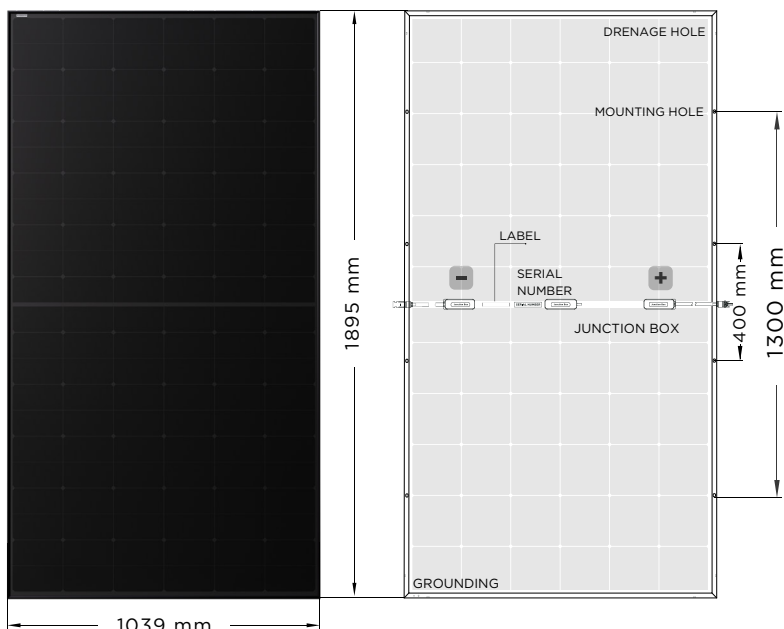
N-Type cells have no Light Induced Degradation

PERFORMANCE



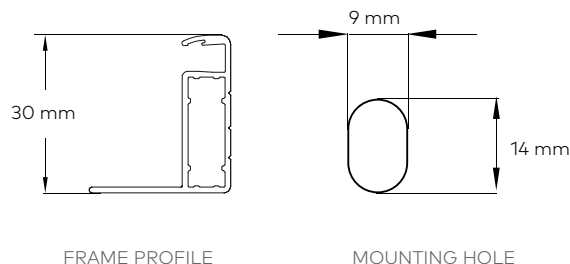
30 YEARS
Performance Guarantee

30 YEARS
Product Warranty



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MATERIAL CHARACTERISTICS

Dimensions	1895x1039x30 mm (1.969 m ²)
Weight	26 kg
Glass front/rear	2 mm half tempered glass, low iron
Number of cells	132 pcs (6x22)
Cell layout	Bifacial, Half Cut N-Type IBC 166x83 mm
Frame	Black color, Anodized aluminum alloy
Junction box	IP 68 rated, 3 bypass diodes
Output cable	4 mm ² , 1400 mm, customizable
Connector type	Staubli MC4-Evo 2 / MC4 (Original)

PACKAGING INFORMATION

One pallet quantity	35 pcs
40 ft HC/HQ container	840 pcs

TEMPERATURE PARAMETERS

Temperature Coefficient of Pmax	-0.29 % / °C
Temperature Coefficient of Voc	-0.246 % / °C
Temperature Coefficient of Isc	+0.046 % / °C
Operating Temperature	-40°C to +85 °C

MAXIMUM RATINGS

Max. System Voltage	1500V DC (IEC)
Max. Series Fuse Rating	20A
Uplift load (wind)	2400 Pa*
Downforce load (snow)	5400 Pa*
Hail Resistance	Max. diameter 25mm, impact speed 23m/s

*For more information please refer to Instruction Manual

MODULE TYPE	IBC-132BD			410 Wp			415 Wp			420 Wp		
ELECTRICAL CHARACTERISTICS	STC	*10%	*20%	STC	*10%	*20%	STC	*10%	*20%			
Maximum power (Pmax / Wp)	410	440.8	471.5	415	446.1	477.3	420	451.5	483			
Open circuit voltage (Voc / V)		45.7			45.8			45.9				
Short circuit current (Isc / A)	11.46	12.32	13.18	11.56	12.43	13.29	11.66	12.53	13.41			
Maximum power voltage (Vmp / V)		38.4			38.6			38.8				
Maximum power current (Imp / A)	10.69	11.49	12.29	10.76	11.57	12.37	10.83	11.64	12.45			
Module efficiency at STC (ηm / %)	20.8	22.4	23.9	21.1	22.7	24.3	21.3	23.9	24.5			
Power tolerance (Pmax)	(0,+5) Wp											

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

*10% is the Irradiance from rear side: 100 W/m²

*20% is the Irradiance from rear side: 200 W/m²

CERTIFICATES

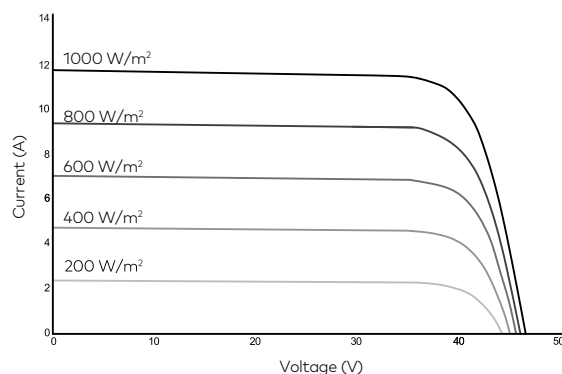
IEC61215/61730, IEC62804 (PID), IEC61701 (Salt)

IEC62716 (Ammonia), IEC60068-2-68 (Sand)

IC TS 62941 -2016 PV industry quality management system



I-V Curves (420 W)



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