



ASTORIOS

per aspera ad astra

PHOTOVOLTAIC MODULE

ASTR M5-60SB Series 390-410 Wp

SHINGLED CELLS

410 W
MAXIMUM POWER OUTPUT

20.9 %
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



SHINGLING TECHNOLOGY

Adhesive bonded, innovative high-density shingled cells layout technology



MINIMIZING THE SHADING IMPACT

Better partial-shade tolerance and high effective power generation hours due to full parallel arrangement



PID RESISTANT

Selected encapsulants, precision in manufacturing quality control makes modules highly PID resistant and snail trails free



SAND, AMMONIA AND SALT MIST RESISTANCE

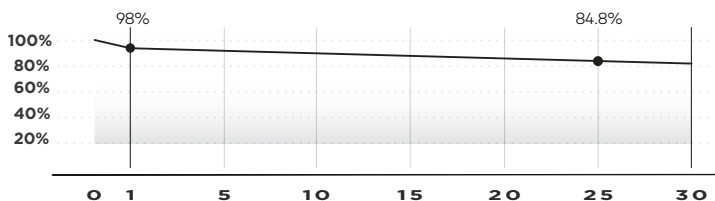
Sand blowing, ammonia and salt mist resistance tests have been passed by international standards to ensure operation in harsh conditions



SUPERIOR APPEARANCE

Uniform and solid layout, high tech look

PERFORMANCE

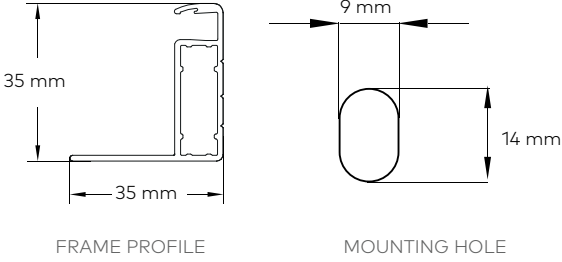
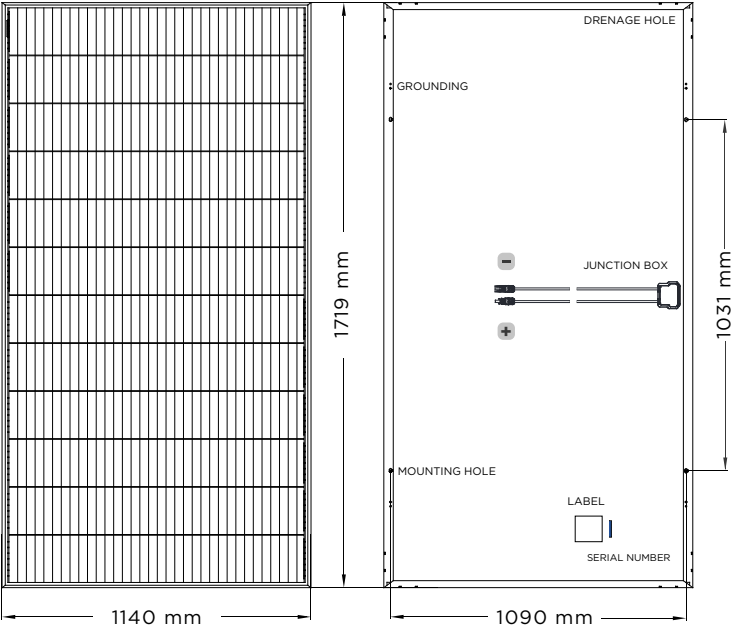


30 YEARS

Performance Guarantee

15 YEARS

Product Warranty



MATERIAL CHARACTERISTICS

Dimensions 1719x1140x35 mm
 Weight 22 kg
 Glass 3.2 mm AR coated tempered glass, low iron
 Cells Mono-crystalline
 Cell layout 360 (36*10)
 Frame Anodized aluminum alloy
 Junction box IP 68 rated, 2 bypass diods
 Output cable 4 mm², 1200 mm, customizable
 Connector Staubli MC4 / MC4-Evo 2 / MC4 Compatible

PACKAGING INFORMATION

One pallet quantity 31 pcs
 40 ft HC/HQ container 806 pcs
 Truck 1240 pcs

TEMPERATURE PARAMETERS

Temperature Coefficient of Pmax -0.34 % / °C
 Temperature Coefficient of Voc -0.27 % / °C
 Temperature Coefficient of Isc +0.04 % / °C
 Operating Temperature -40°C to +85 °C
 Nominal Module Operating Temperature (NMOT) 42.3±2°C

MAXIMUM RATINGS

Max. System Voltage 1000/1500V 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	M5-60SB		390 Wp		395 Wp		400 Wp		405 Wp		410 Wp	
ELECTRICAL CHARACTERISTICS	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Maximum power (Pmax / Wp)	390	294	395	297	400	301	405	305	410	309		
Open circuit voltage (Voc / V)	46.3	44.1	46.3	44.1	46.4	44.2	46.5	44.3	46.6	44.4		
Short circuit current (Isc / A)	10.87	8.77	10.92	8.81	10.97	8.85	11.02	8.89	11.07	8.93		
Maximum power voltage (Vmp / V)	38.5	36.7	38.5	36.7	38.6	36.8	38.7	36.9	38.8	37.0		
Maximum power current (Imp / A)	10.13	8.00	10.26	8.10	10.36	8.18	10.47	8.27	10.57	8.35		
Module efficiency at STC (ηm / %)	19.9		20.2		20.4		20.7		20.9			
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 800 W/m², ambient temperature 20°C and wind speed 1 m/s

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

