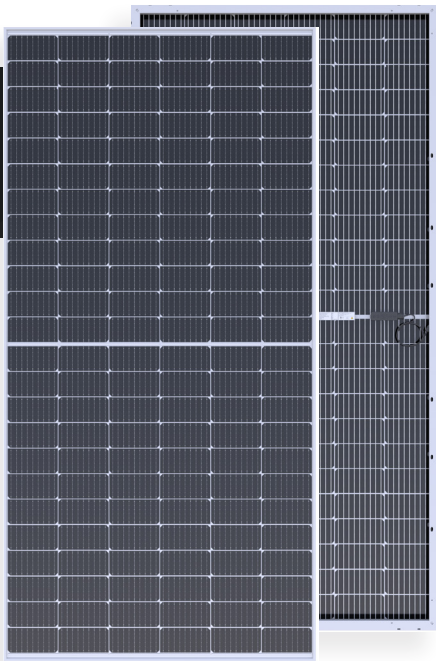


VEGA SERIES™



UTILITY SCALE SOLAR MONO | BIFACIAL | PERC | PV MODULE

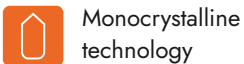
Power Range:	440W 445W 450W
Technology:	PERC Half cut cell 9 Busbar 144 Cells
Design:	Single Glass Silver Frame Transparent Back
Module Efficiency:	20.20%
Cell Efficiency:	22.5%~22.8%
Power Tolerance:	0~+5W
System Voltage:	1000/1500 V DC
Module Size:	84.06 x 41.19 x 1.30 inch
Module Weight:	58.43 lb.

DESIGNED TO PERFORM AND BUILT TO LAST

Our PV modules are designed with better technology in mind, made from robust product components, under stringent quality control steps and high-tech manufacturing processes.

PERC, half-cut, multi-busbar, and large cell designs enables our PV modules to pack more power per module, capture more

photons, produce more energy, and provide reliable, dependable system performance under different installations requirements, difficult weather, or environmental conditions. Whether you are EPC, installer, contractor, or project developer, we have the right and better PV module for your residential, commercial, industrial, and utility scale solar projects.



Monocrystalline technology



P-Type semiconductor



Passivated emitter and rear cell technology



Half cut cell



Multi-Busbar cell



Large wafer design



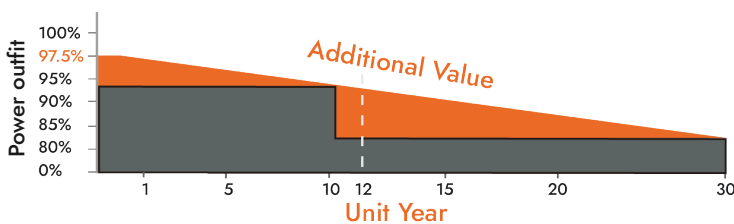
Beautiful aesthetic



Robust product component

WARRANTY

30 Years - Linear power performance warranty
12 Years - Enhanced product warranty



Output Linear Warranty

1 (12) years product warranty

Standard Warranty

2 Out linear warranty with 2.5% degradation in the 1st year and less than 0.5% degradation each year from 2nd year to 30th year

CERTIFICATES

UL 61730 | IEC 61215 | IEC 61730 | CE Listed | MCS

ISO 9001 Quality Management System

ISO 14001 Environmental Management System

OHSAS 18001 Occupational Health and Safety Management System

*Please contact with Boviet Solar representatives for full list of certificates according to local requirements and product type

ELECTRICAL CHARACTERISTICS | STC

Maximum Power (Pmax)	440W	445W	450W
Maximum Power Current (Imp)	10.92A	10.99A	11.06A
Maximum Power Voltage (Vmp)	40.37V	40.57V	40.76V
Short Circuit Current (Isc)	11.48A	11.55A	11.60A
Open Circuit Voltage (Voc)	48.60V	48.80V	49.05V
Module Efficiency	19.7%	19.9%	20.2%
Power Tolerance	0~+5W	0~+5W	0~+5W

STC: AM1.5 Irradiance 1000W/m², 25° C

ELECTRICAL CHARACTERISTICS | NOCT

Maximum Power (Pmax)	440W	445W	450W
Maximum Power (Pmax)	324W	342W	361W
Maximum Power Current (Imp)	8.46A	8.65A	8.84A
Maximum Power Voltage (Vmp)	38.29V	39.54V	40.8V
Short Circuit Current (Isc)	8.87A	9.08A	9.28A
Open Circuit Voltage (Voc)	47.8V	48.2V	48.6V

NOCT: AM 1.5 Irradiance 800/m², 20° C, Wind speed 1m/s

MECHANICAL CHARACTERISTICS

Solar Cell	Monocrystalline I PERC PV Cells 166mm Cell I Half-cut I 9 Busbar I 144 (6x24) pcs in series
Solar Modules	Bifacial I 84.06 x 41.19 x 1.30 inch. I Weight: 58.43 lb.
Module Glass	3.2 mm (0.13 inch) High transparent I Irradiance: AM 1.5, 1,000W/m ² (450W)
Module Frame	Frame 35 mm Ultra-strong anodized aluminum alloy frame
Module Junction Box	IP68 rated I 3 bypass diodes
Module Output Cable	4mm ² (EU) I 12 AWG (US) 39.38 inch
Module Connector	Multi contact (MC4) compatible connectors
Module Encapsulant	POE
Module Backsheet	Transparent with grid, FFC/PET/FFC material 0.315mm thickness for transparent area, 0.335mm included grid layer.
Module Fire Type	Type 1 Fire rated

PACKING INFORMATION

Pieces per pallet:	31
Pallets per container (40HQ):	22
Pieces per container (40HQ):	682
Pallet Weight:	1921.33 lb
Pallet Dimension:	85.23 x 44.69 x 45.88 inch

MAXIMUM RATING

Operating Temperature	-40°F~185°F
Maximum Series Fuse Rating	20A
Isc Temperature Coefficient	1000/1500V DC

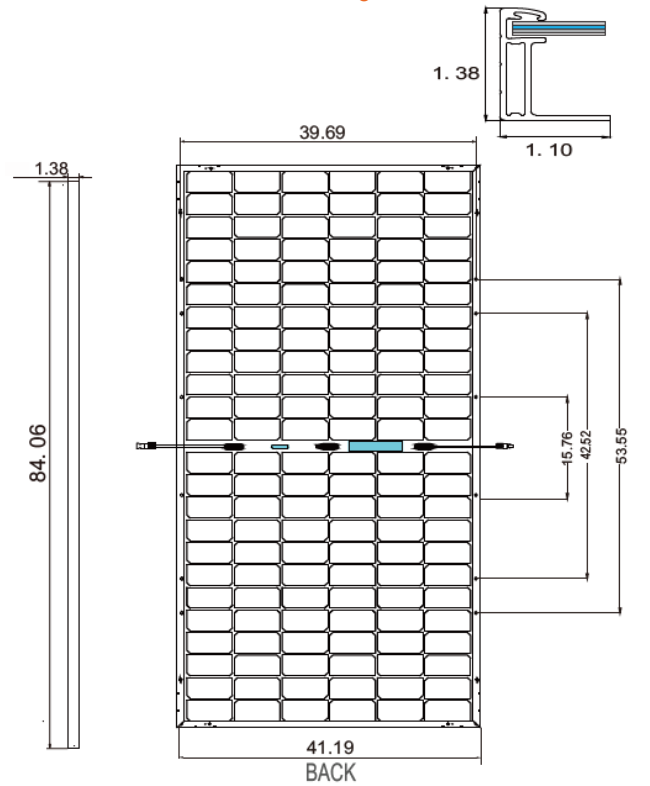
THERMAL CHARACTERISTICS

Pmax Temperature Coefficient	-0.35%/K
Voc Temperature Coefficient	-0.285%/K
Isc Temperature Coefficient	+0.05%/K
NOCT	113±35.6°F

BIFACIAL OUTPUT-BACKSIDE POWER GAIN

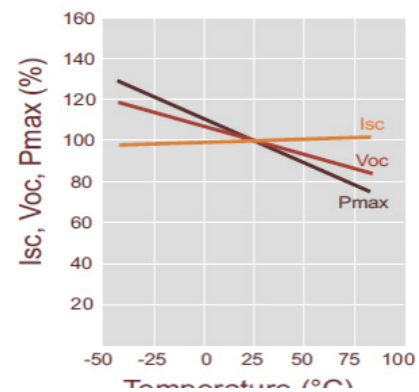
10%	Pmax(W)	484	490	495
	Module efficiency (%)	21.67	21.92	22.17
20%	Pmax(W)	528	534	540
	Module efficiency (%)	23.64	23.91	24.18

PV Module: Mechanical Drawing



PV Module: IV Curve

Irradiance: AM 1.5, 1,000W/m² (450W)



PV Module: IV Curve

I-V Curves at Different Irradiances (450W)
Test Temperature: 25° C

