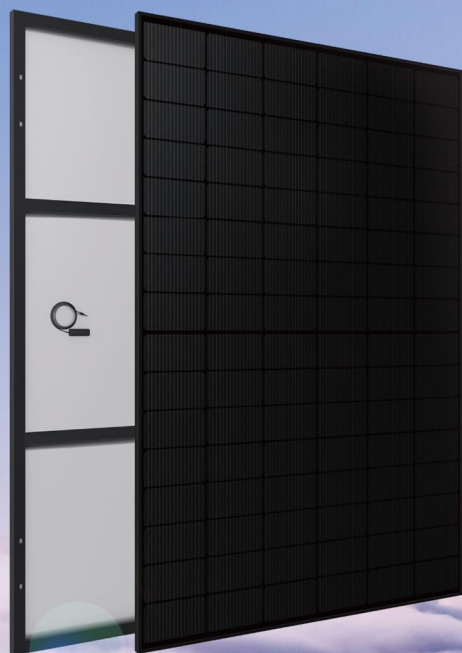




niwa Ultra Light

n-Type Ultra-light Module

JW-HL96N-R2

445-470W

470W

Maximum Power Output

23.5%

Maximum Module Efficiency

0~+3%

Power Output Tolerance



High Power Generation Efficiency

Incorporates latest J-TOPCon cell technology, featuring a lower temperature coefficient, superior IAM performance, and enhanced low-light response.



High Reliability

Reinforced frame design with increased load capacity; withstands up to 4,200 Pa front-side and 3,000 Pa back-side static mechanical load testing.



Easy Installation

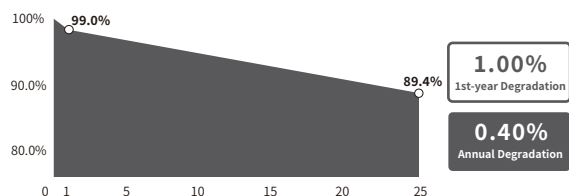
Quick mounting with clamps; requires no roof reinforcement for simple construction and reduced installation costs.



Lightweight Design

Weighs only 7.2 kg/m², approximately 40% lighter than conventional double-glass modules, ideal for roofs with lower load-bearing capacity.

Linear Performance Warranty



12 Years Product Material & Workmanship 25 Years Linear Performance Warranty



IEC 61215(2021)/IEC 61730(2023)

ISO 9001:2015: Quality Management System

ISO 14001:2015: Environment Management System

ISO 45001:2018: Occupational health and safety

IEC 62941:2019: Quality system for PV module manufacturing

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@Jolywood Solar

JW-HL96N | n-Type Ultra-light Module

Electrical Properties | STC*

Testing Condition	Front Side	Front Side	Front Side	Front Side	Front Side	Front Side
Peak Power (P _{max}) (W)	445	450	455	460	465	470
MPP Voltage (V _{mp}) (V)	29.64	29.82	30.00	30.18	30.36	30.54
MPP Current (I _{mp}) (A)	15.01	15.09	15.17	15.24	15.32	15.39
Open Circuit Voltage (V _{oc}) (V)	34.51	34.71	34.91	35.11	35.31	35.51
Short Circuit Current (I _{sc}) (A)	15.86	15.93	16.00	16.07	16.14	16.21
Module Efficiency (%)	22.3	22.5	22.8	23.0	23.3	23.5

*STC: Irradiance 1000 W/m², Cell Temperature 25°C, AM1.5
The data above is for reference only and the actual data is in accordance with the practical testing
Power Measurement Tolerance ±3%

Electrical Properties | NMOT*

Testing Condition	Front Side	Front Side	Front Side	Front Side	Front Side	Front Side
Peak Power (P _{max}) (W)	333	337	341	345	348	352
MPP Voltage (V _{mp}) (V)	28.38	28.55	28.73	28.90	29.07	29.24
MPP Current (I _{mp}) (A)	11.74	11.80	11.86	11.92	11.98	12.04
Open Circuit Voltage (V _{oc}) (V)	33.05	33.24	33.43	33.62	33.81	34.00
Short Circuit Current (I _{sc}) (A)	12.81	12.87	12.92	12.98	13.04	13.09

*NMOT: Irradiance 800 W/m², Ambient Temperature 20°C, Wind Speed 1 m/s

Operating Properties

Operating Temperature	-40°C~+85°C
Maximum System Voltage	1500V (IEC)
Maximum Series Fuse Rating	35A
Static Load	Front side 4200Pa, Rear side 3000Pa

Temperature Coefficient

Temperature Coefficient of P _{max}	-0.280%/°C
Temperature Coefficient of V _{oc}	-0.250%/°C
Temperature Coefficient of I _{sc}	+0.045%/°C
Nominal Operating Cell Temperature	45±2°C

Specification

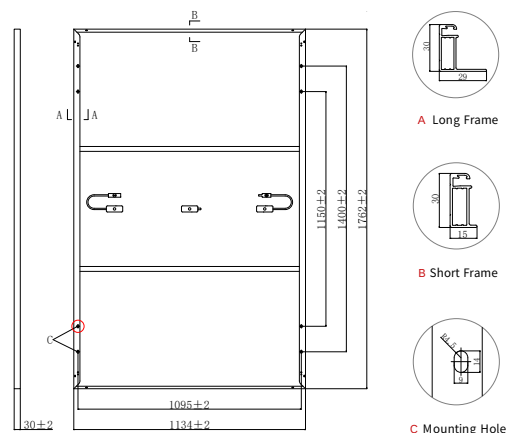
Number of Cells	96pcs
Module Dimension	1762mm*1134mm*30mm
Weight	14.4±3%kg
Glass	1.6mm Heat-strengthened glass
Frame	Anodized Aluminium Alloy
Junction Box	IP68 (3 diodes)
Length of Cable	4.0mm ² , +300mm/-180mm (Cable length can be customized)

Packaging Configuration

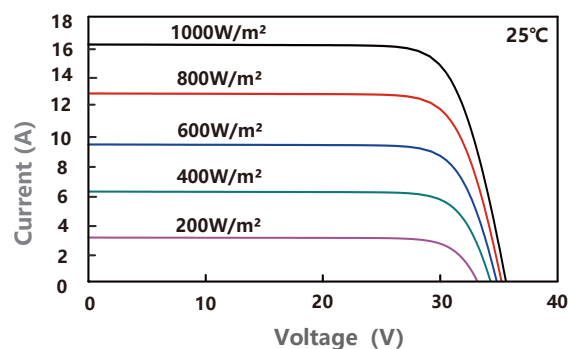
Piece/Pallet	37pcs
20GP	222pcs
40GP	481pcs
40HQ	962pcs

The specification and key features described in this datasheet may deviate slightly and are not guaranteed. Due to ongoing innovation and R&D enhancement, Jolywood (Taizhou) Solar Technology Co., Ltd. reserves the right to make any adjustment to the information described herein at any time without notice. Please always obtain the most recent version of the datasheet, which shall be duly incorporated into the binding contract made by the parties governing all transactions related to the purchase and sale of the products described herein.

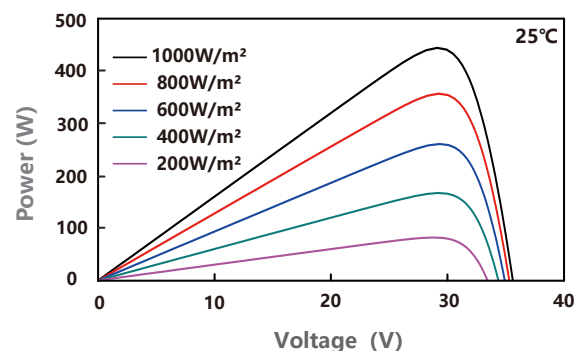
Engineering Drawing (unit: mm)



Characteristic Curves | JW-HL96N-R2-460



I-V Characteristics at Different Irradiations



P-V Characteristics at Different Irradiations

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