

The logo for Innotech Solutions features a stylized square frame with a thick black border. The top-right corner of the square is cut off, and the bottom-left corner is also cut off, creating an open, modern look. The word "Innotech" is written in a bold, sans-serif font inside the frame, and the word "Solutions" is written in a similar bold, sans-serif font to the right of the frame.

**Innotech**  
**Solutions**

Technological Market Products SL



# JW-HD144N

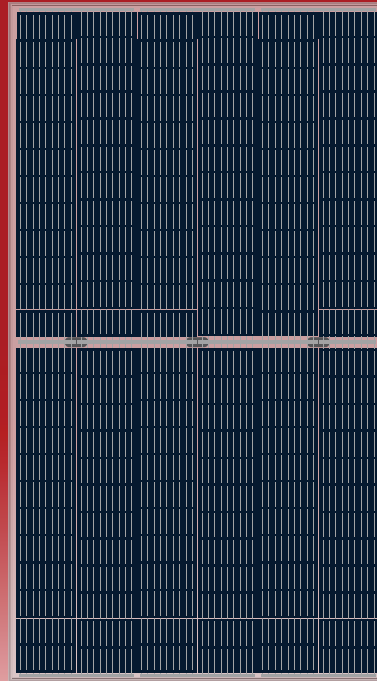
N-type Bifacial High Efficiency  
Mono Silicon Half-Cell Double Glass Module

## 395-420W

Cell Type



9BB



## 420W

Maximum Power Output

## 20.92%

Maximum Module Efficiency

## 0~+5W

Power Output Guarantee



### Additional Power Generation Gain

At least 30-year product life, more than 10%- 30% additional power gain comparing with conventional module



### ZERO LID (Light Induced Degradation)

N-type solar cell has no LID naturally, can increase power generation



### Lower LCOE

High power and 1500V system voltage, saving BOS cost



### Better Weak Illumination Response

Wide spectral response, higher power output even under low-light settings like smog or cloudy days



### Better Temperature Coefficient

Higher power generation under working conditions, thanks to passivating contact cell technology



### Wider Applicability

BIPV, vertical installation, snowfield, high-humid area, windy and dusty area

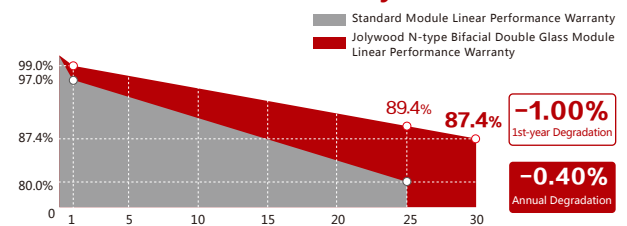
## Jolywood Delivers Reliable Performance Over Time

- Global leader in N-cell & module production
- Fully automatic facility and world-class technology
- Long term reliability tests
- 100% EL inspection ensuring defect-free modules

## Additional Insurance Backed by Munich Re



## Linear Performance Warranty



15 Years Product Material & Workmanship 30 Years Linear Performance Warranty

Remark: 15 years warranty for Europe use only

# JW-HD144N Series

## N-type Bifacial High Efficiency Mono Silicon Half-Cell Double Glass Module

### Electrical Properties | STC\*

Testing Condition	Front Side	Front Side	Front Side	Front Side	Front Side	Front Side
Peak Power ( Pmax ) (W)	395	400	405	410	415	420
MPP Voltage ( Vmp ) (V)	41.2	41.5	41.8	42.1	42.4	42.7
MPP Current ( Imp ) (A)	9.60	9.64	9.69	9.74	9.79	9.84
Open Circuit Voltage ( Voc ) (V)	49.5	49.8	50.1	50.4	50.7	51.0
Short Circuit Current ( Isc ) (A)	10.08	10.14	10.19	10.24	10.29	10.34
Module Efficiency ( % )	19.67	19.92	20.17	20.42	20.67	20.92

\*STC: Irradiance 1000 W/m<sup>2</sup>, Cell Temperature 25°C, AM1.5  
The data above is for reference only and the actual data is in accordance with the practical testing

### Electrical Properties | NOCT\*

Testing Condition	Front Side	Front Side	Front Side	Front Side	Front Side	Front Side
Peak Power ( Pmax ) (W)	299	303	306	310	314	318
MPP Voltage ( Vmp ) (V)	38.6	38.9	39.2	39.5	39.8	40.0
MPP Current ( Imp ) (A)	7.74	7.77	7.81	7.85	7.89	7.93
Open Circuit Voltage ( Voc ) (V)	47.3	47.6	47.9	48.2	48.5	48.7
Short Circuit Current ( Isc ) (A)	8.13	8.18	8.22	8.26	8.30	8.34

\*NOCT: Irradiance at 800 W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1 m/s

### Operating Properties

Operating Temperature ( °C )	-40°C ~ +85°C
Maximum System Voltage ( V )	1500V (IEC)
Maximum Series Fuse Rating(A)	20
Power Tolerance	0 ~ +5W
Bifaciality*	80%

\*Bifaciality= Pmaxrear ( STC ) / Pmaxfront ( STC ) , Bifaciality tolerance: ±5%

### Temperature Coefficient

Temperature Coefficient of Pmax*	-0.320%/°C
Temperature Coefficient of Voc	-0.260%/°C
Temperature Coefficient of Isc	+0.046%/°C
Nominal Operating Cell Temperature (NOCT)	42±2°C

\*Temperature Coefficient of Pmax: 0.03%/°C

### Mechanical Properties

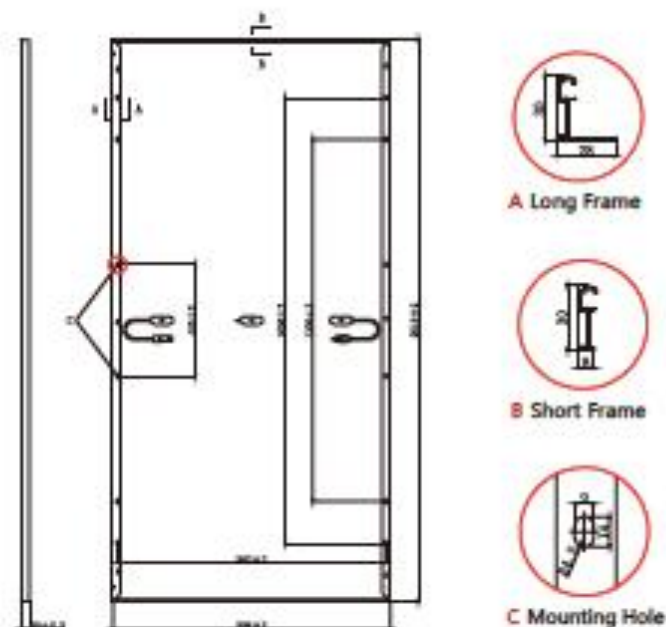
Cell Type	158.75mm*79.375mm
Number of Cells	144pcs(12*12)
Dimension	2016mm*996mm*30mm
Weight	29.5kg
Front /Rear Glass*	2.5mm/2.5mm
Frame	Anodized Aluminium
Junction Box	IP67 ( 3 diodes )
Length of Cable*	4.0mm <sup>2</sup> , 300mm
Connector	MC4 Compatible

\*Heat strengthened glass  
\*Cable length can be customized

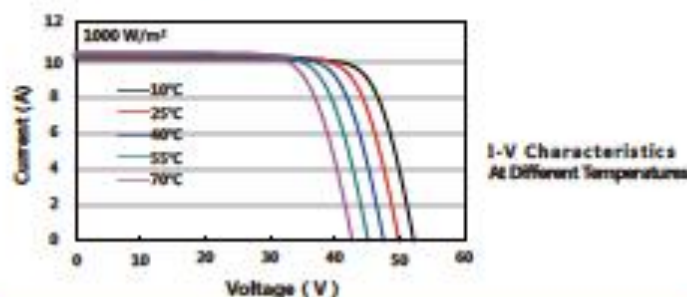
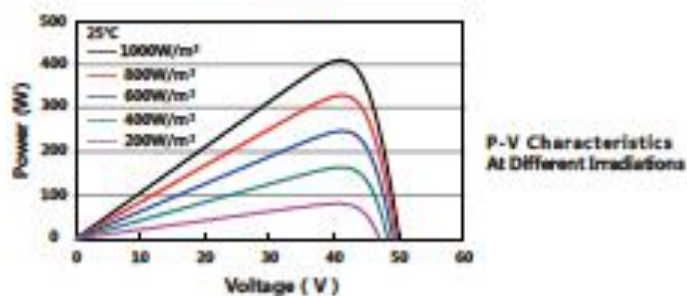
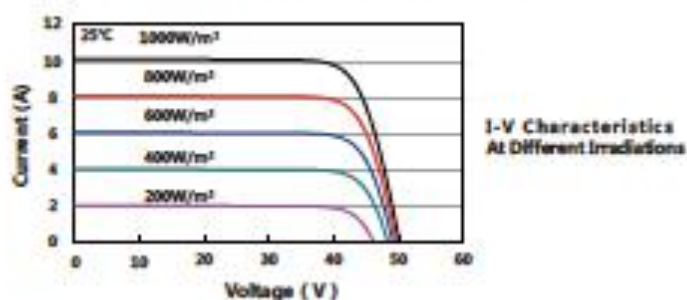
### With Different Power Generation Gain ( regarding 405W as an example )

Power Gain (%)	Peak Power ( Pmax ) (W)	MPP Voltage ( Vmp ) (V)	MPP Current ( Imp ) (A)	Open Circuit Voltage ( Voc ) (V)	Short Circuit Current ( Isc ) (A)
10	437	41.8	10.46	50.1	10.98
15	454	41.9	10.84	50.2	11.38
20	470	41.9	11.22	50.2	11.78
25	486	41.9	11.60	50.2	12.18
30	502	41.9	11.99	50.2	12.57

### Engineering Drawing ( unit : mm )



### Characteristic Curves | HD144N-405



### Packaging Configuration

Packing Type	20'GP	40'GP	40'HQ
Piece/Pallet		35	
Pallet/Container	5	11	22
Piece/Container	175	385	770

\*The specification and key features described in this datasheet may deviate slightly and are not guaranteed. Due to ongoing innovation, 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.