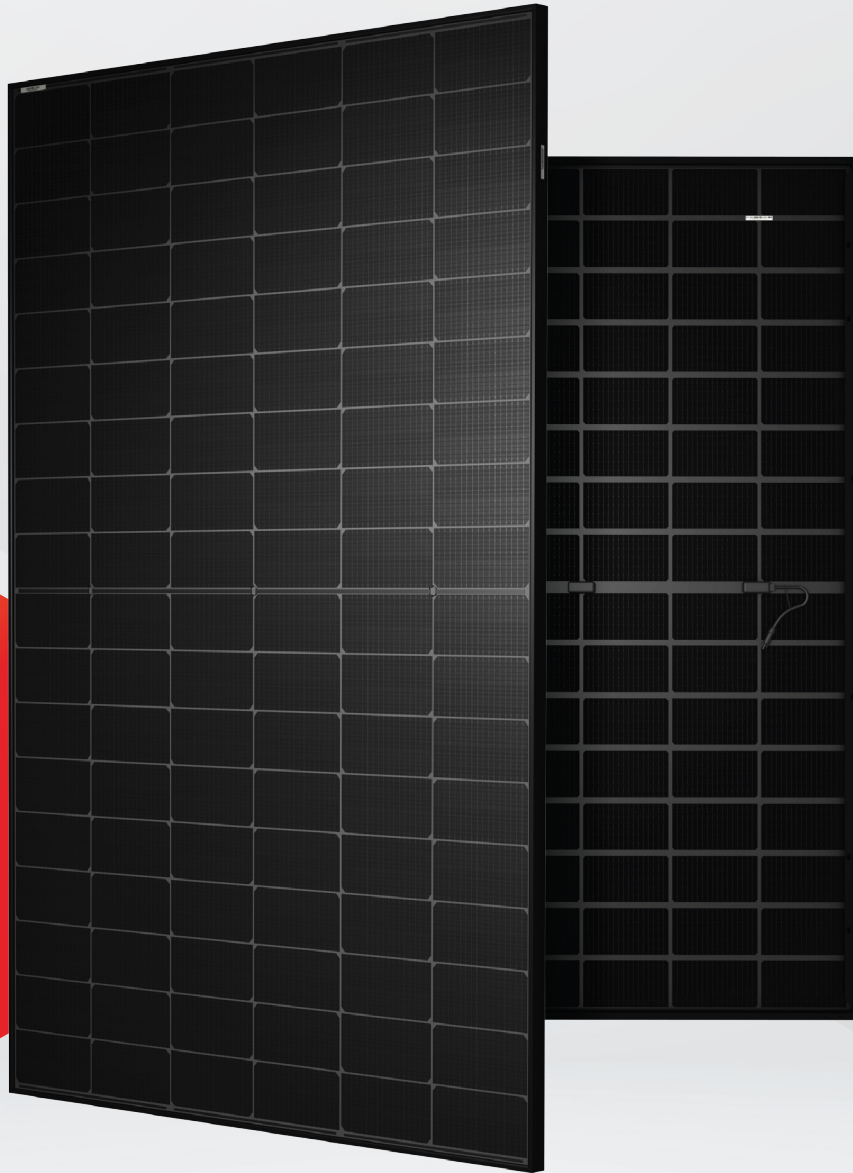


# Full Black Series

Bifacial • N-Type



TWMNH



Latest N-Type  
Technology



Responsible  
Manufacturing



Dual Glass  
Design



Product  
Warranty



Performance  
Warranty



# TWMNH

Full Black • Bifacial • N-Type

## Reliable Performance and Superior Durability for Australian Homes

### Ensuring Reliability

Our rigorous processes enable us to meet and exceed the stringent testing standards required for the Australian climate.



#### Salt Mist Rated

Level 8 - Highest rating to last in coastal regions



#### Superior Hail Testing

45mm hailstones at 110km/h



#### Latest N-Type Technology

Offers higher efficiency, better performance in low-light conditions, and superior temperature tolerance compared to traditional P-Type panels.



#### Responsible Manufacturing

Ensures responsible manufacturing with TUV-certified quality and rigorous testing for reliable, high-performance solar solutions.



#### Perfect for Australian Residential Homes

Tailored to meet the unique energy needs of Australian homes, offering reliability and efficiency for residential solar installations.



#### Dual Glass Design

Provides enhanced durability and moisture resistance, significantly reducing the risk of long-term degradation and ensuring reliability even in harsh conditions.



#### 25-Year Product Warranty

Reflects confidence in manufacturing quality, providing peace of mind with guaranteed performance over a quarter-century.



#### 30-Year Performance Warranty

Ensures that panels retain high output levels over time, delivering sustained value and maximum return on investment.

Toughened Glass

Encapsulant - EVA

Photovoltaic Solar Cells

Encapsulant - EVA

Black Inner Sheet

Toughened Glass

Aluminium Frame

Available from

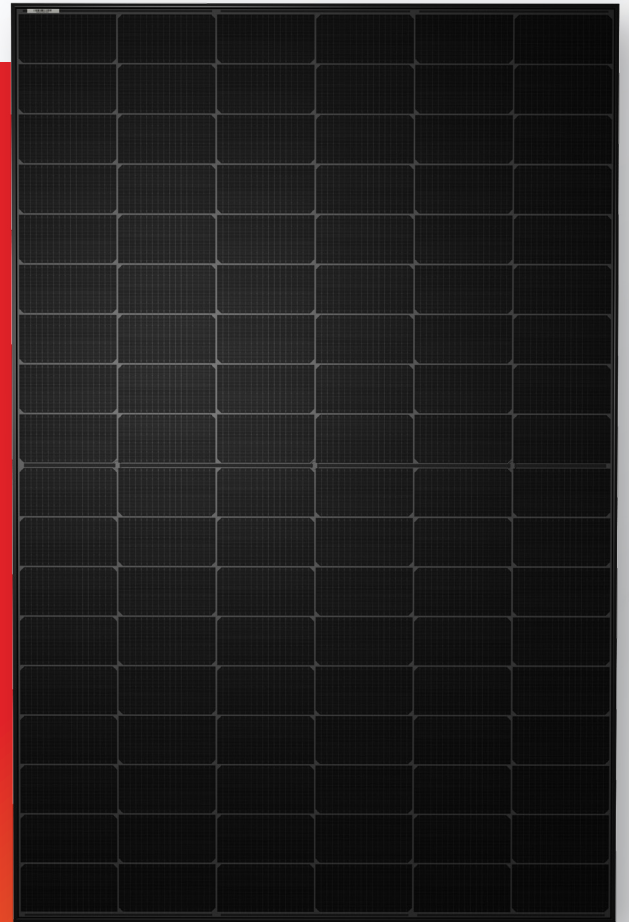


# Built for Longevity, From Source to Installation

At TW Solar, we take pride in our vertically integrated production system, ensuring premium quality solar panels at every step of the process.

## Why does this matter?

By controlling the entire journey, from refining polysilicon to assembling the final product, we deliver unmatched performance and reliability. Our supply chain has been independently verified by TÜV Rheinland, confirming our adherence to the highest ethical and environmental standards.



Polysilicon

Ingots

Wafers

Solar Cells

Solar Modules

## Did you know?

As the largest producer of solar cells globally, with a 2024 capacity of over 140GW, we can power the equivalent of 21 million homes\* and offer long-term warranties with confidence.

\*Based 6.6kW homes



## The result?

Solar panels that not only look stunning on your roof but are built to power your home with clean, reliable energy for decades.



Take a look at this impressive 19.8kW installation in Brisbane's South



[b.link/twsolar-casestudy](https://b.link/twsolar-casestudy)

# Full Black Series

TWMNH-440W • Bifacial • N-Type

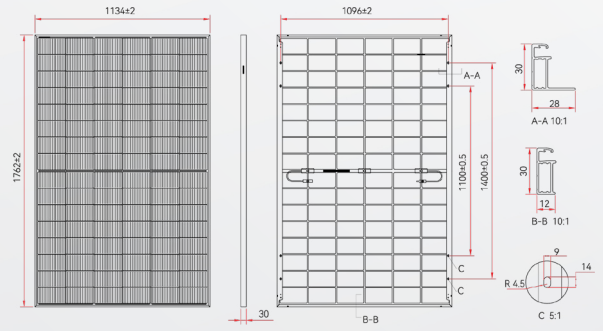


## Electrical Characteristics (STC) (NMOT)

Model	TWMNH-48HC440	
Testing Condition	STC	NMOT
Maximum Power: Pmax (W)	440	332
Open Circuit Voltage: Voc (V)	35.35	33.65
Short Circuit Current: Isc (A)	15.89	12.83
Voltage at Maximum Power: Vmp (V)	29.67	27.74
Current at Maximum Power: Imp (A)	14.83	11.97
Module Efficiency: (%)	22	

\*STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass 1.5, Measuring Tolerance: ±3% \*NMOT: Irradiance 800W/m<sup>2</sup>, Cell Temperature 20°C, Air Mass 1.5, Wind Speed 1m/s

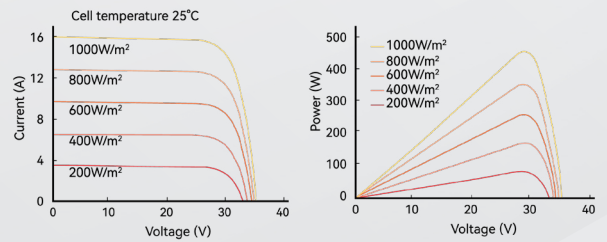
## Technical Drawings



## Electrical Characteristics (BNPI)

Maximum Power: Pmax (W)	485.7
Open Circuit Voltage: Voc (V)	35.35
Short Circuit Current: Isc (A)	17.54
Voltage at Maximum Power: Vmp (V)	29.67
Current at Maximum Power: Imp (A)	16.37

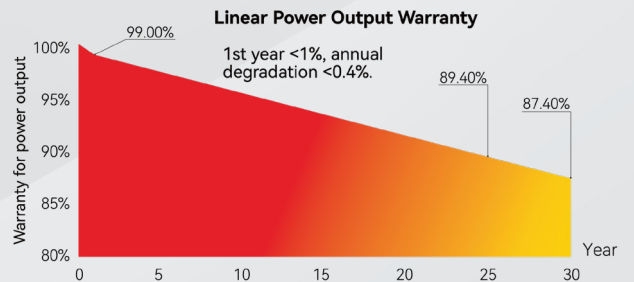
## I-V Curve



## Mechanical Parameters

Cell Type	TNC (N Type Monocrystalline Cell)
Cell Orientation	96 (6x16)
Dimension (L x W x H)	Length: 1762mm
	Width: 1134mm
	Height: 30mm
Weight	20.9kg
Front Glass	1.6mm high transmittance, AR tempered glass
Backsheet	1.6mm semi-tempered glass
Frame	Anodized Aluminium Alloy Black Frame
Cable (Including Connector)	1200mm
Junction Box	IP 68 Rated, 3 diodes

## Linear Power Output Warranty



## Temperature Rating

Temperature Coefficient (Pmax)	-0.28%/°C
Temperature Coefficient (Voc)	-0.24%/°C
Temperature Coefficient (Isc)	+0.046%/°C
NMOT	45±2°C

## Packaging Configurations

Per Pallet	36 Modules
Per 40'HC Container	936 Modules / 26 Pallets

## Operating Parameters

Operating Temperature	From -40°C to +70°C
Maximum System Voltage	1500V DC
Wind/ Snow Load	2400Pa/5400Pa
Maximum Series Fuse Rating	30A
Power Selection Tolerance	0~+3W
Bifaciality Coefficient of Pmax	80±10%
Bifaciality Coefficient of Voc	98±5%
Bifaciality Coefficient of Isc	80±10%
Fire Class Rating	Class C

## Certifications

### Quality Management System and Product Certification

- ISO 9001: 2015 / Quality Management Systems
- ISO 14001: 2015 / Environmental Management Systems
- ISO 45001: 2018 / Occupational Health and Safety Management Systems
- ISO 50001: 2018 / Energy Management Systems
- IEC 62941: 2019 / Quality System for PV Module Manufacturing
- IEC 61215 (2021) / IEC 61730 (2023)



Email: sales@tongwei.com | Website: en.tongwei.cn | Phone: +86 28 60707985  
Address: No.588, Middle Section Tianfu Avenue, High-Tech Zone, Chengdu, China (Sichuan) Pilot Free Trade Zone

**Statement:** With technological process and product update, there maybe deviation between the technical parameters of Tongwei's module products and the technical parameters contained in the specification, and Tongwei Solar has the right to adjust the technical parameters at any time without notifying the customer, the final interpretation of the technical specifications vested in Tongwei Solar. (AUS-20250120) Made in China