

TOPSUN

MONOCRISTALLYNE BIFACIAL PV MODULES

N-TYPE TECHNOLOGY

TOP- 450 | 470M-96BI

450 - 470 WP

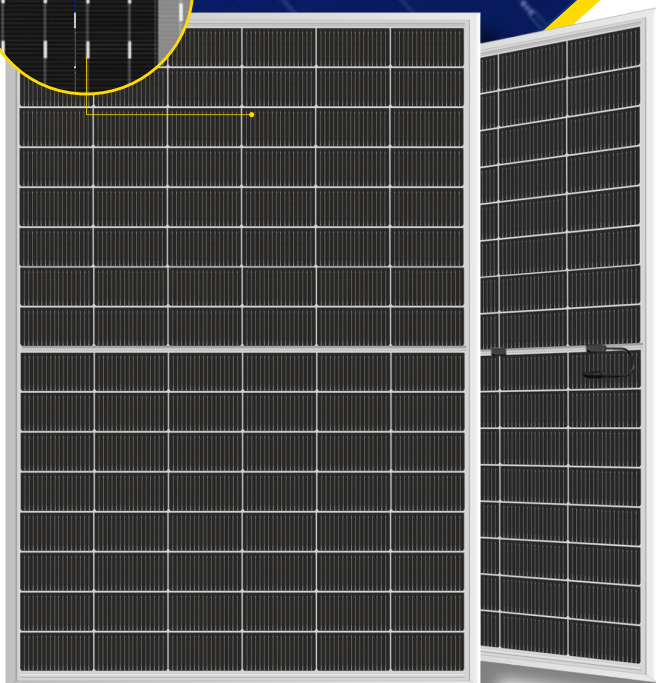
96 CELLS * 210MM

MAX. EFFICIENCY 23,5%

DOUBLE GLASS

KEY FEATURES

- Industry lower thermal coefficient pwr
- 15+10 Years Product EU Warranty
- Excellent irradiance performance
- Excellent PID resistance
- Positive tolerance from 0 to +3%
- Fully automated production all stages
- Reduced power losses **16 BUSBAR**
- European Quality Standards, warranty and after sales service



61215



61730



OHSAS18001



CE



ISO14001



ISO 9001



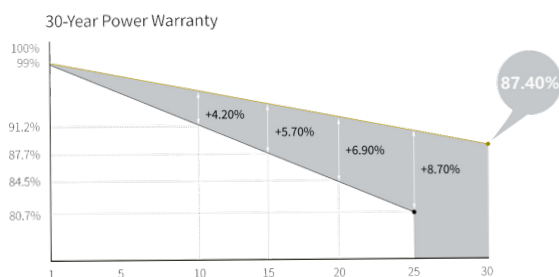
RECYCLE

TAMESOL building a green future SL, is a European manufacturer of high-efficiency PV panels with a 10GW annual production capacity and 100% automated production line located in China, **innovating state-of-the-art products for over 18 years.**

Our panels have been installed in more than 50 countries, with over 20 million panels already connected to the grid.

PERFORMANCE WARRANTY

1% first year - 0,40% year 2 to 30



*15 (+10)-year Product & 30-year Linear Power

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TAMESOL
Since 2017 building a green future

23,50%

MAX. MODULE
EFFICIENCY

+3%

POWER
TOLERANCE

1%

1ST YEAR POWER
DEGRADATION

0,40%

YEAR 2 TO
YEAR 30

N-TYPE CELL

LOWER OPERATING
TEMPERATURE

PACKING MANNER

Packaging(pcs/40HQ container)		17.5 meter semi hanging		Dimensions	Weight
31/806pcs	37/962pcs	31/868pcs	37/1036pcs	1762x1134x35(30)mm	25kg±3%

MECHANICAL SPECIFICATION

Cell	N-type mono-crystalline	Maximum System Voltage	1500VDC
No.of cells	96(6x16)	Operating Temperature	-40°C~+85°C
Cable Length	300mm(+)/300mm(-)	Maximum Series Fuse	30A
Cable Cross Section Size	4mm ² (IEC)	Maximum StaticLoad,Front	5400Pa(112lb/ft ²)
Junction Box	IP68,3 diodes	Maximum StaticLoad,Back	2400Pa(50lb/ft ²)
Connector	MC4 Compatible	Safety Class	Class II
STC:AM1.5 1000W/m ² 25°C NOCT:AM1.5 800W/m ² 20°C 1m/s		Test Uncertainty for Pmax ±3%	

OPERATING PARAMETERS

ELECTRICAL CHARACTERISTICS

NOTC: AM1.5 800W/m² 20° 1 m/s Test uncertainty for Pmax 0 - +3%

Module Type	TOP-450M-96BI		TOP-455M-96BI		TOP-460M-96BI		TOP-465M-96BI		TOP-470M-96BI	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power(Pmax/W)	450	341	455	345	460	349	465	352	470	356
Open Circuit Voltage(Voc/V)	35.80	34.01	35.98	34.18	36.16	34.35	36.34	34.52	36.52	34.69
Short Circuit Current(Isc/A)	15.90	12.83	15.93	12.86	15.96	12.88	15.99	12.91	16.02	12.93
Voltage at Maximum Power(Vmp/V)	29.93	28.49	30.15	28.75	30.37	29.01	30.59	29.27	30.81	29.53
Current at Maximum Power(Imp/A)	15.04	11.97	15.10	12.00	15.16	12.02	15.22	12.04	15.28	12.06
Module Efficiency(%)	22.50		22.80		23.00		23.30		23.50	

TEMPERATURE RATINGS (STC)

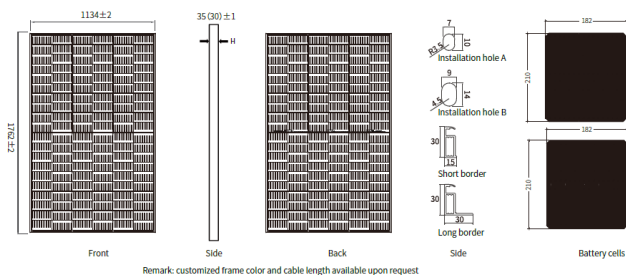
Normal Operating Cell Temperature(NOCT)	45±2°C
Temperature Coefficient of Isc	+0.045%/°C
Temperature Coefficient of Voc	-0.275%/°C
Temperature Coefficient of Pmax	-0.300%/°C

POWER OUTPUT FRONT & REAR SIDE

(REFERENCEDSPECIFICALLY TO 450WP FRONT)

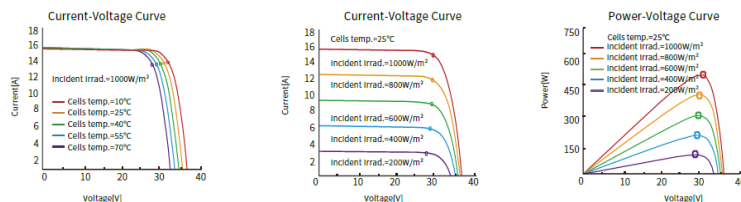
Power Gain (%)	5%	10%	15%	20%	25%
Maximum Power(Pmax/W)	472	495	517	540	562
Pmax Gain(%)	23.60%	24.80%	25.90%	27.00%	28.10%

SIZES OF MODULE



Remark: customized frame color and cable length available upon request

I-V CURVE (TOP-450 | 470M-96BI)



OFFICIAL SOLAR DEALER

Note: The specifications are obtained under the Standard Test Conditions (STCs): 1000 W/m² solar irradiance, 1.5 Air Mass, and cell temperature of 25°C. The NOCT is obtained under the Test Conditions: 800 W/m², 20°C ambient temperature, 1m/s wind speed, AM 1.5 spectrum. Please contact info@tamesol.com for technical support. The actual transactions will be subject to the contracts. This parameter is for reference only and it is not a part of the contracts. The specifications are subject to change without prior notice.