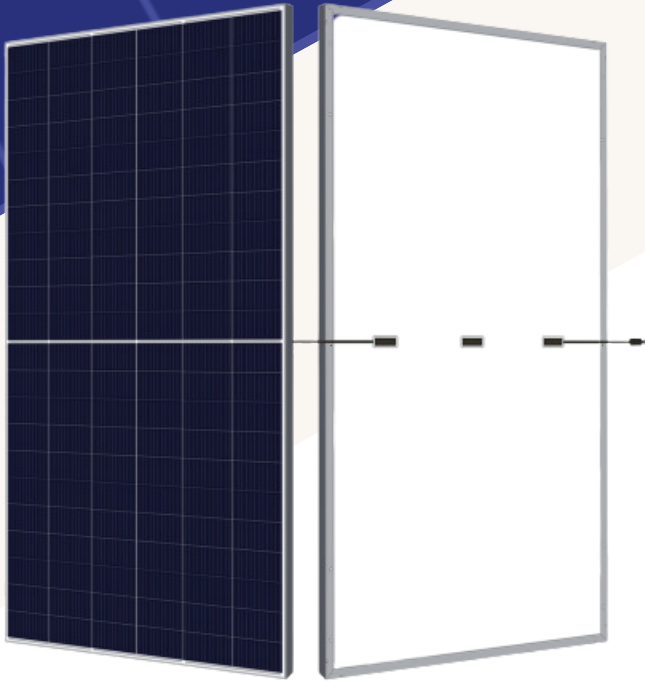


# PERC**MAX**

HIGH PERFORMANCE  
MONOCRYSTALLINE  
P.E.R.C MODULE



120

## TM - 445/465M-120HC









**120 CELL**  
Mono PERC Module

**445- 465Wp**  
Power Output Range

**1500VDC**  
Maximum System Voltage

**21.46%**  
Maximum Efficiency

### KEY SALIENT FEATURES

-  Industry leading lowest thermal co-efficient of power
-  Industry leading 15 years product warranty
-  Excellent low irradiance performance
-  Excellent PID resistance
-  Positive power tolerance of 0~+3%
-  Fully automated production at all stages
-  Fully Reduced power loss by minimizing the effect of shadow shading ( 9 - 18 Busbar)
-  European Warranty & After - Sales Service



### TAMESOL BUILDING A GREEN FUTURE S.L

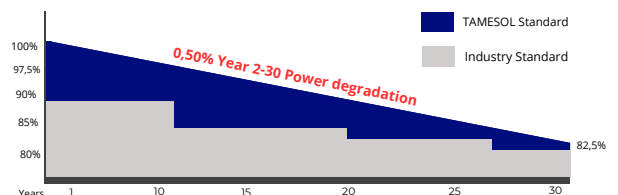
TAMESOL is a global provider of high-efficiency PV panels with a 10GW annual production capacity and a 100% automated production line, innovating state-of-the-art products for over 15 years. Our panels have been installed in more than 50 countries, with over 20 million panels already connected to the grid.

Tel : +34 872 222 388

E - mail: [info@tamesol.com](mailto:info@tamesol.com) Website: [www.tamesol.com](http://www.tamesol.com)

### LINEAR PERFORMANCE WARRANTY

15 year Product Warranty / 30-Year Linear Power Warranty



**TAMESOL** **15**  
YEARS

*Since 2007, building a green future*

**21,46%**

MAX MODULE  
EFFICIENCY

**0 - +3%**

POWER  
TOLERANCE

**2,0%**

FIRST YEAR POWER  
DEGRADATION

**0,50%**

YEAR 2-30  
POWER DEGRADATION

**PERC CELL**

Lower operating temperature

## ELECTRICAL CHARACTERISTICS

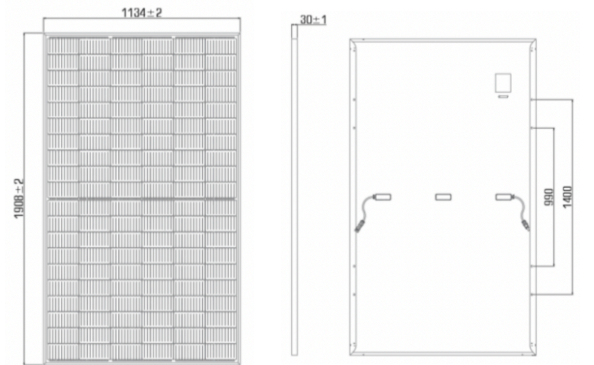
STC: AM1.5 1.000W/m2 NOTC: AM1.5 800W/m2 20° 1 m/s Test uncertainty for Pmax 0 - +3%

Module type	TM - 445M-120HC		TM - 450M-120HC		TM - 455M-120HC		TM - 460M-120HC		TM - 465M-120HC	
	STC	NOTC	STC	NOTC	STC	NOTC	STC	NOTC	STC	NOTC
Testing condition										
Maximum Power (Pmax/w)	445	328	450	331	455	335	460	339	465	343
Open Circuit Voltage (Voc/V)	41.75	38,48	41.4	38,68	41,60	38,88	41,80	39,08	42,00	39,28
Short Circuit Current (Isc/A)	11.31	10.73	13.68	10,78	13,73	10,83	13,78	10,88	13,83	10,93
Voltage at Maximum Power (Vmp/V)	41.75	32.14	34.60	32,34	34,80	32,50	35.0	32.74	35.4	32.94
Current at maximum Power (Imp/A)	10.66	10,21	12.96	10,24	13,02	10,30	13.08	10,35	13.14	10,40
Module Efficiency (%)	20,5%		20,79%		21,02%		21,25%		21,46%	

## MECHANICAL PARAMETERS

Cell Orientation	single crystal PERC182x91/182mm (120 pieces)
Junction Box	IP68, three diodes
Output Cable	1000mm (can be customized)
Glass	3.2mm tempered coated glass, low iron
Frame	Anodized aluminum alloy frame
Weight	23kg
Dimensión	1909*1134*30/35mm
Packaging	31/36/37 pcs*pallet / 744/792/888pcs*40HQ

## PHYSICAL CHARACTERISTICS



## OPERATING PARAMETERS

Operational Temperature	-40°C - +85°C
Power Output Tolerance	(0, +3%)
Maximum System Voltage	1500V DC
Maximum Series Fuse Rating	25 A
Nominal Operating Cell Temperature	45±2°C
Protection Glass	Class II
Fire Rating	Class C

## MECHANICAL LOADING

Front Side Maximum Static Loading	5400 PA
Rear Side Maximum Static Loading	2400 PA

## TEMPERATURA RATINGS (STC)

Temperature Coefficient of Isc	+0.055%/°C
Temperature Coefficient of Voc	-0.289%/°C
Temperature Coefficient of Pmax	-0.380%/°C

## PACKING MANNER

Container	40ft(HQ)
Number of modules per container	744/792/888
Number of modules per pallet	31/ 33/37
Number of pallets per container	24

TAMESOL Authorized 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](mailto: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.