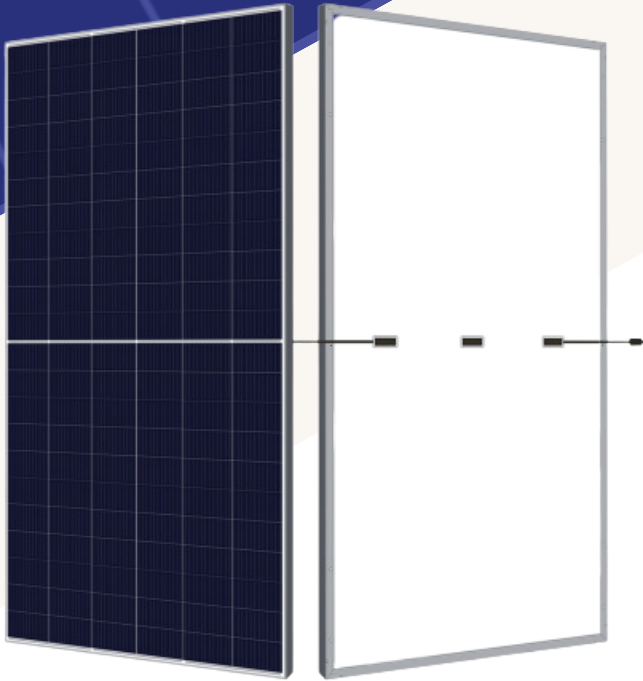


PERC MAX

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

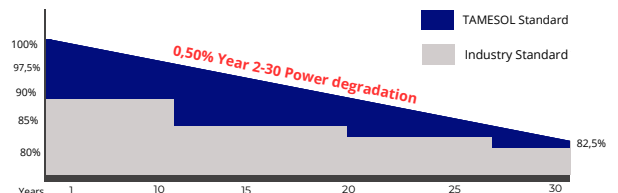
TAMESOL is a global provider of high-efficiency PV panels with a 10GW annual production capacity and a 100% automated production line, innovating state-of-the-art products for over 15 years. Our panels have been installed in more than 50 countries, with over 20 million panels already connected to the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

Tel : +34 872 222 388

E - mail: info@tamesol.com Website: 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

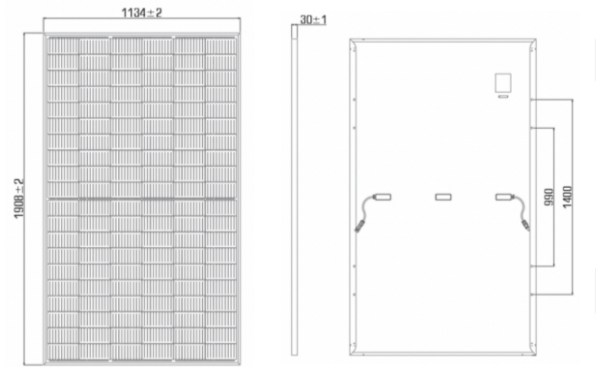
NOTC: AM1.5 800W/m² 20° 1 m/s Test uncertainty for Pmax +3%

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	1916/*1134*30mm
Packaging	36/37 pcs*pallet / 792/ 864/888pcs*40HQ

PHYSICAL CHARACTERISTICS



OPERATING PARAMETERS

Operational Temperature	-40°C - +85°C
Power Output Tolerance	(0, +3%)
Voc and Isc Tolerance	±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
Hailstone Test	Diameter 25mm, impact speed 23m/s

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	792/ 864/888
Number of modules per pallet	36/37
Number of pallets per container	22 / 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 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.