



# ANKARA<sup>®</sup> SOLAR

CAPITOL OF SOLAR ENERGY



## Premium Series AS-M60 Bifacial Module Maximize Energy

### High Performance



Bifacial technology generates power from both the front and back faces of the module, resulting in up to 20% higher energy harvest (kWh). Our HCT cells packaged in frameless double glass modules yield higher power and do not suffer from light-induced degradation (LID) or potential induced degradation (PID).

### Robust Quality & Reliability



Double glass modules designed for durability. Certified to international certification body standards: IEC. Manufactured according to the International Quality Management System ISO9001 ISO14001, OHSAS18001 and CE.

### Guaranteed Performance



All modules have a 12 year product warranty and 30 year power output warranty.

### Superior Aesthetics



Thin profile double-glass construction provides superior aesthetics that are a perfect complement to roofs, carports, and canopies.



IEC61215 - IEC61730 - ISO9001:2008 - ISO14001:2004 - OHSAS18001:2007

### High Efficiency

19.4% Module Efficiency (STC),  
21.0% Efficiency with 10% Backside Power Boost, and  
23.2% with 20% Backside Power Boost

### Bifacial Energy Boost

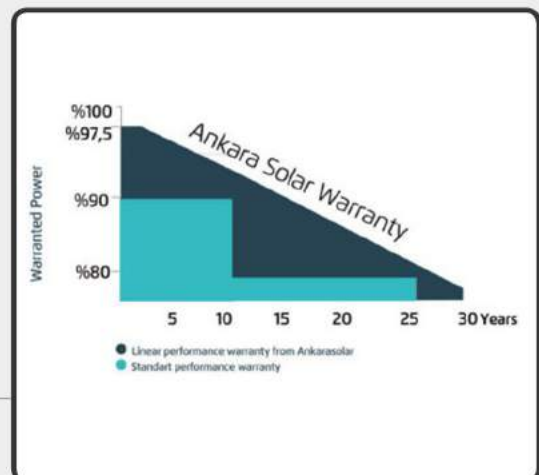
Harvests sun from the backside to increase power output up to 20%

### Double-Glass Frameless Design

Ankara Solar is more robust, and does not require module grounding

**12 YEAR**  
PRODUCT WARRANTY

**30 YEAR**  
POWER WARRANTY



Made in Turkey



# Premium Series AS-M60 Bifacial Solar Module

## ELECTRICAL SPECIFICATIONS<sup>1</sup>

	AS-M60 300TP	AS-M60 310TP	AS-M60 320TP
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STC rated output $P_{MPP}$ (W)	300	310	320
Cell Efficiency	21.3%	21.6%	22.0%
Module Efficiency STC	18.2%	18.8%	19.4%
Standard sorted output	-3%/+5%	-3%/+5%	-3%/+5%
Open Circuit Voltage $V_{OC}$ (V)	43.6	43.8	44.0
Short circuit current $I_{SC}$ (A)	9.26	9.3	9.34
Rated Voltage $V_{MPP}$ (V)	35.3	36.0	36.5
Rated Current $I_{MPP}$ (A)	8.6	8.7	8.8

1: Standard Test Conditions for front-face of panel: 1000 W/m<sup>2</sup>, 25°C.

## BI-FACIAL OUTPUT\*

*With 10% Backside Power Boost*

Power Output (W)	330	341	352
Module Efficiency	20.1%	20.7%	21.0%

*With 20% Backside Power Boost*

Power Output (W)	360	372	384
Module Efficiency	22.0%	22.6%	23.2%

\*Backside boost for flush mount configuration is ≤5%, resulting in  $I_{SC} \leq 9.56 - 9.77$  A

## TEST OPERATING CONDITIONS

Operating Temperature	- 40 to + 85°C
Storage Temperature	- 40 to + 85°C
Maximum Series Fuse	20 A
Maximum System Voltage	1,500VDC (IEC)
Maximum load capacity	5,400 Pa (snow load)
Fire Class	Class A - Type 3

## TEMPERATURE COEFFICIENTS

Temperature coefficient $P_{MPP}$	-0.28%/C
Temperature coefficient $I_{SC}$	+0.015%/C
Temperature coefficient $V_{OC}$	-0.21%/C
Normal operating cell temperature (NOCT)°C	46C +/- 2

## WARRANTY

- 12 year extended product warranty
- 97.5% power warranty first 5 years
- 0.5% per year degradation for the following 30 years

## CERTIFICATION

Certified to IEC 61215, IEC 61730-01, IEC 61730-02, ISO 9001, ISO 14001, CEC, CE Mark and TUV SUD

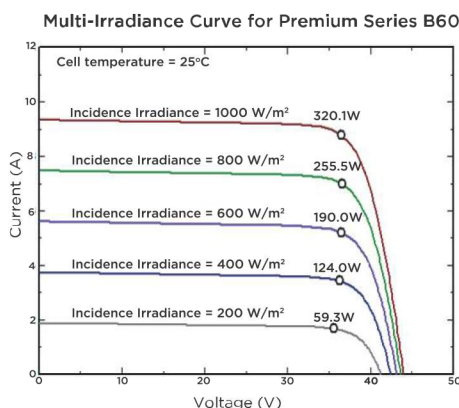
## MECHANICAL SPECIFICATIONS

Dimensions	1634 x 986 x 7 mm
Weight	25.2 kg (55.56 lbs)
Area	1,61 m <sup>2</sup>
Cell type	Monocrystalline Bifacial Solar Cells
Module type	60 Cells, Frameless double glass design with tempered glass,
Glass	Tempered 3,2mm anti-reflective coating, low-iron
Junction Box	Tyco IP-65 rated; 1,500V UL/IEC, 3 diodes
Cables	4mm <sup>2</sup> x 0.9 m cable: MC4 or MC4 compatible

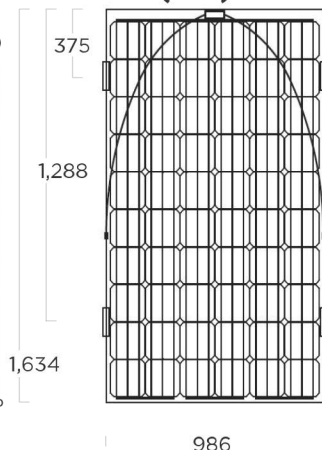
## PACKAGING

Modules per crate	26
Crates per shipping container	28

## $I_{max} - V_{max}$ (60 cell Version)



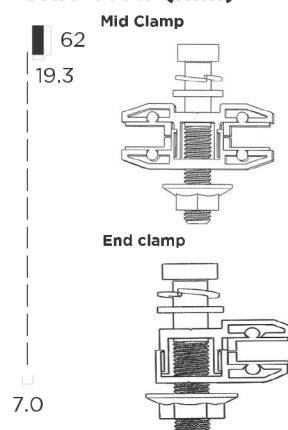
## Rear View (mm)



## Mounting method

- Rail structure runs parallel to short-side of module if in portrait mount on roof top (0.9m cable length)
- Rail structure runs parallel to long-side of module in ground mount (1.2m cable length)

## Side View (mm)



A recommended clamp assembly