




ANKARA®
SOLAR

CAPITAL OF SOLAR ENERGY
GÜNEŞ ENERJİSİ'NİN BAŞKENTİ



www.ankarasolar.com.tr



Capital of Solar Energy

ANKARA SOLAR produces Photovoltaic Solar Panels and Solar Cells using solar energy technologies. It was established in Ankara in 2012 and continues its activities in this area. It improves its practices with expert engineer staff along with unity of mind, synergy and power.

The most important renewable energy source, Solar Energy, is used especially for electricity production. With renewable energy law in our country, both private capital and public organizations demand producing electricity from Solar Energy. Using Solar Energy ratio in our country is higher than any other country. The reason is that our country has longer duration for getting solar rays and higher solar radiation values. In the light of data obtained after 3-year researches abroad, ANKARA SOLAR set solar module installation with 70-MW production capacity in a year into operation.

As ANKARA SOLAR, our primary goal is to minimize the reliance of Turkey on foreign countries in terms of electricity energy and maximize energy production using local resources. The leading renewable energy resource, Solar Energy, is among the most ideal resource to produce electricity. Towards the end of 2012, ANKARA SOLAR started to churn out in Ankara which is capital of both Turkey and Industry.

ANKARA SOLAR continues its studies to produce national and global solutions in Solar Energy use and production sector along with innovations. Moreover, it contributes to national economy and fights against unemployment by employing people in big projects in the sector.



SAVE



MONEY



ENERGY



PLANET

ANKARA SOLAR is one of the solar panel manufacturers that have cutting edge technology in Europe. Our whole machine line belongs to Mondragon Assembly, one of the biggest machine manufacturers in Europe. Our production line is the newest facility in Europe as well as being the biggest solar panel facility in Turkey.

Having Europe technology, Mondragon Assembly Tabber Stringer in our production line is solar technology leader in the world. Arrays in our products are top quality in Europe. We use robots belonging to the company while placing the arrays over glass. So, defect possibility in our product is eliminated. Our lamination machines are designed for top quality lamination.

With our solar panel production line having over 70-MW production capacity in a year, we cater to whole world except for Turkey.

Making new investments every passing day is among our goals for our facility which was established to produce 100% hygienic solar panels without human intervention. It is very important for us to have international solar panel quality certificates and even to be the first solar panel manufacturer in Turkey to have those certificates.

In our production line where the cutting edge technology is used, products are immediately tested out after production and go to packaging system, then become ready to be shipped. From the beginning to the end, no human intervention occurs in the production.

PRODUCTS

Our products with ANKARA SOLAR brand name on them are solar panels with Monocrystalline and Polycrystalline. These solar panels are produced in framed, non-framed, different background film colors, laminated glass by glass and ready to integrate with the building. Moreover, we do special designs if the customer demands.

For standard serial production, ANKARA SOLAR produces 250-watt polycrystalline solar panels. ANKARA SOLAR product range allows for production with all sizes and different cell types starting from 125 watt for PV modules. We have unlimited solutions for all of your demands.

All of our products are warranted for 12 years. Warranty terms are written in detail on our products' packages. Our products produced with high technology offer 30-year operating time. Moreover, we guarantee 90% performance within first 10 years and 80% performance between 25 and 30 years for impeccable energy source for you.

Ankara Solar AS-EU-6P30

Ankara Solar's photovoltaic modules are designed for large electrical power requirements. With a 30-year warranty, AS-EU-6P30 offers higher-powered, more reliable performance for both on-grid and off-grid solar projects.



Key Features

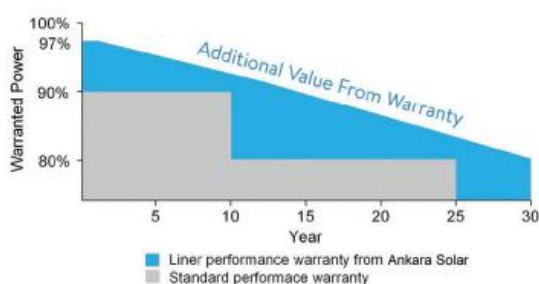
- ➔ High module conversion efficiency up to 15.84% through superior manufacturing technology.
- ➔ Low degradation and excellent performance under high temperature and low light conditions.
- ➔ Robust aluminum frame ensures the modules to withstand wind loads up to 2400Pa and snow loads up to 5400Pa.
- ➔ Positive power tolerance of 0 ~ +3 %.
- ➔ High ammonia and salt mist resistance.
- ➔ Potential induced degradation (PID) free.

Quality Certificates

- ➔ IEC61215, IEC61730, IEC62716, IEC61701, UL1703, CE, MCS, CEC, Israel Electric, Kemco
- ➔ ISO9001:2008: Quality management system
- ➔ ISO14001:2004: Environmental management system
- ➔ OHSAS18001:2007: Occupational health and safety management system

Special Warranties

- ➔ 12 year limited product warranty.
- ➔ Limited power warranty: 12 years 91.2% of the nominal power output, 30 years 80.6% of the nominal power output.



Electrical Characteristics

Electrical parameters at STC

Nominal Power (P_{max})	230W	235W	240W	245W	250W	255W
Open Circuit Voltage (V_{OC})	37.04V	37.13V	37.23V	37.36V	37.60V	37.83V
Short Circuit Current (I_{SC})	8.39A	8.42A	8.47A	8.60A	8.68A	8.74A
Voltage at Nominal Power (V_{mp})	29.09V	29.23V	29.55V	29.73V	30.02V	30.13V
Current at Nominal Power (I_{mp})	7.92A	8.05A	8.13A	8.25A	8.34A	8.47A
Module Efficiency (%)	14.29	14.60	14.91	15.22	15.53	15.84

STC: Irradiance 1000W/m², Cell temperature 25°C, AM1.5
Tolerance of measured P_{max} : $\pm 3\%$

Electrical parameters at NOCT

Nominal Power (P_{max})	168W	172W	175W	179W	183W	186W
Open Circuit Voltage (V_{OC})	34.08V	34.16V	34.25V	34.37V	34.59V	34.80V
Short Circuit Current (I_{SC})	6.80A	6.82A	6.86A	6.97A	7.03A	7.08A
Voltage at Nominal Power (V_{mp})	26.47V	26.60V	26.89V	27.05V	27.32V	27.42V
Current at Nominal Power (I_{mp})	6.35A	6.47A	6.51A	6.62A	6.70A	6.78A

NOCT: Irradiance 800W/m², Ambient temperature 20°C, Wind speed 1 m/s

Mechanical Characteristics

Cell type	Polycrystalline 156x156mm
Number of cells	60 (6x10)
Module dimension	1639x982x35mm
Weight	20kg
Front cover	3.2mm low-iron tempered glass
Back cover	PPE (Polyester Polyester Primer)
Frame	Silver/black anodized aluminum alloy
Junction box	IP65, 3 Bypass diodes
Cable	4mm ² , 900mm
Connector	MC4 or MC4 compatible
Standard packaging	40pcs/pallet
Module quantity per container	600pcs/40HQ

Temperature Characteristics

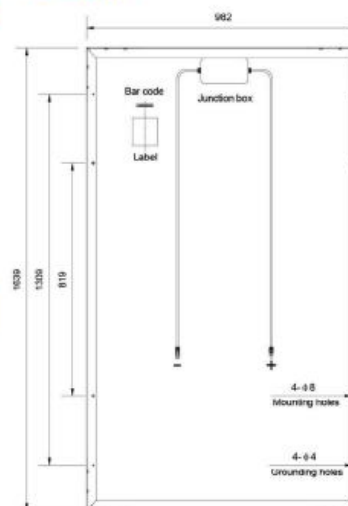
Nominal Operating Cell Temperature (NOCT)	45°C $\pm 2^\circ$ C
Temperature Coefficients of P_{max}	-0.424%/°C
Temperature Coefficients of V_{OC}	-0.313%/°C
Temperature Coefficients of I_{SC}	+0.059%/°C

Maximum Ratings

Operating Temperature	-40°C to +85°C
Maximum System Voltage	1000V DC
Maximum Series Fuse Rating	15A

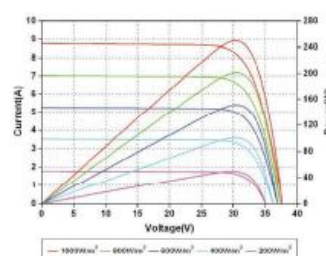
Specifications in this datasheet are subject to change without prior notice.

Drawings

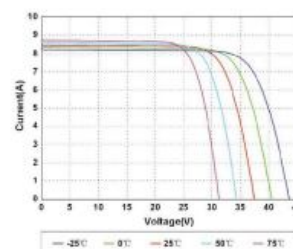


Unit: mm

I-V Curves



Current-Voltage and Power-Voltage Curves at Different Irradiances



Current-Voltage Curves at Different Temperatures

CERTIFICATES



SERTİFİKA CERTIFICATE

ATTESTATION OF COMPLIANCE

APPLICATION : ANKARA SOLAR ENERJİ İNŞAAT ANONİM ŞİRKETİ
SAMSUN YOLU ÜZERİ GÖKÇEYURT SERPMELERİ NO:362
MAMAK-ANKARA

MANUFACTURER : ANKARA SOLAR ENERJİ İNŞAAT ANONİM ŞİRKETİ
SAMSUN YOLU ÜZERİ GÖKÇEYURT SERPMELERİ NO:362 MAMAK-
ANKARA

PRODUCT NAME : PV MODULE

STANDARTS : TS 61730-TS 61215

DRECTIVE(S) : 2006/95/EC Low Voltage Directive

Base of Attestation : File of technical document, Test Report(12/399-02 10.10.2014)

The technical file and test result of the above product have been checked and found in compliance with the Parliament and Council 2006/95/EC (Low Voltage Directive)

The referred technical document(s) Show that the product complies with the essential requirement listed above EU drective(s),Other relevant documents have to be observed. This attestation does not abrogate the compulsory of the manufacturer to issue the decleration of conformity.

Sertifika No : CE-141112
Certificate No
İlk yayın tarihi : 27.11.2014
Issue date
Bu sertifikanın yayın tarihi : 27.11.2014
Issue date of this certificate
Bu sertifikanın geçerlilik tarihi : 26.11.2015
Validity date of this certificate



Genel Müdür
General Manager

DSR Uluslararası Gözetim ve Belgelendirme Hiz. LTD. ŞTİ.

Yukarı Mah.Oymak Sk. No: 5 D:5 Katlı - İSTANBUL
Sertifikanın geçerliliği gözetim denetimlerinin başarıyla gerçekleştirilmesine bağlıdır.
Sertifikanın geçerlilik durumu web sitemizden incelenebilir (www.dsrcert.com)



Sertifika

ANKARA SOLAR ENERJİ İNŞAAT ANONİM ŞİRKETİ

Samsun Yolu Üzeri Gökçeyurt Serpmeleri No:362
Mamak/ ANKARA

**Güneş Enerjisi İle Elektrik Üreten Panellerin (Fotovoltaik)
Üretimi ve Satış Sonrası Hizmetleri**

ISO 9001:2008

Şartlarının sağlanmış olduğu kanıtlanmıştır.

Sertifika No : MSC-Q-0041

Yayın Tarihi : 21.11.2014

İlk Yayın Tarihi : 21.11.2014

Bitiş Tarihi : 20.11.2015

Genel Müdür

Bu Sertifika Kuruluşun belgelendirme şartlarına uyması ve yılda en az bir kez yapılacak olan gözetim denetiminin başarılı geçmesi halinde 3 yıl geçerlidir.
Sertifikanın geçerlilik durumu www.mscbelgelendirme.com adresinden kontrol edebilirsiniz.

MSC Uluslararası Belgelendirme Teknik Kontrol ve Özel Eğitim Hiz. Dış Tic. Ltd. Şti.

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info@mscbelgelendirme.com www.mscbelgelendirme.com



Çevre Yönetim Sistemi
TS EN ISO / IEC 17021
AB-0108-YS



Sertifika

ANKARA SOLAR ENERJİ İNŞAAT ANONİM ŞİRKETİ

Samsun Yolu Üzeri Gökçeyurt Serpmeleri No:362
Mamak/ ANKARA

Güneş Enerjisi İle Elektrik Üreten Panellerin (Fotovoltaik)
Üretimi ve Satış Sonrası Hizmetleri

ISO 14001:2004

Şartlarının sağlanmış olduğu kanıtlanmıştır.

Sertifika No : MSC-E-0041

Yayın Tarihi : 21.11.2014

İlk Yayın Tarihi : 21.11.2014

Bitiş Tarihi : 20.11.2015

Genel Müdür

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Bilgi Güvenliği Y.S.
TS EN ISO / IEC 17021
AB-0108-YS



Sertifika

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Samsun Yolu Üzeri Gökçeyurt Serpmeleri No:362
Mamak/ ANKARA

**Güneş Enerjisi İle Elektrik Üreten Panellerin (Fotovoltaik)
Üretimi ve Satış Sonrası Hizmetleri**

OHSAS 18001:2007

Şartlarının sağlanmış olduğu kanıtlanmıştır.

Sertifika No : MSC-S-0041

Yayın Tarihi : 21.11.2014

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Bitiş Tarihi : 20.11.2015

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