

A-160M / A-170M

Professional Photovoltaic Module

ECOLOGICAL FUNCTIONALITY

ATERSA employs last generation materials in the manufacture of their photovoltaic modules. The modules with 72 monocrystalline cells supply the ideal voltage for 24V DC systems, as autonomous installations with high power batteries, direct water pumping... as well as for systems of direct energy injection to the utility grid. These modules are grouped into the high power range, and they are ideal for any application using the photoelectric effect as a source of clean energy, due to its minimal chemical pollution and the non-existence of acoustic contamination. In addition, thanks to its design, they can easily be incorporated into practically any installation.

MATERIALS

ATERSA's vast experience in the manufacture of photovoltaic modules puts the company in an unsurpassable position when choosing the most suitable production materials. This guarantees the quality of their products.

Every module is made of high-level transmissivity crystal. It relies on one of the best encapsulants used in module manufacture, modified ethyl-vinyl-acetate (EVA). The back sheet consists of several layers and each one has a specific function, either for adhesion, electrical insulation, or insulation against adverse weather conditions. In addition, the frame is aluminium and has an external coating of paint that provides the profile with very much greater resistance than the normal anodized layer.

Thanks to the use of this system for their frames, ATERSA has managed to combine not only the aim of providing mechanical rigidity to the laminate complying with the standards required, but also an easy and high-speed assembly system that can reduce the one third the module installation time. This, together with the use of cables with last generation quick connectors, simplifies installation of the module to the maximum.

QUALITY

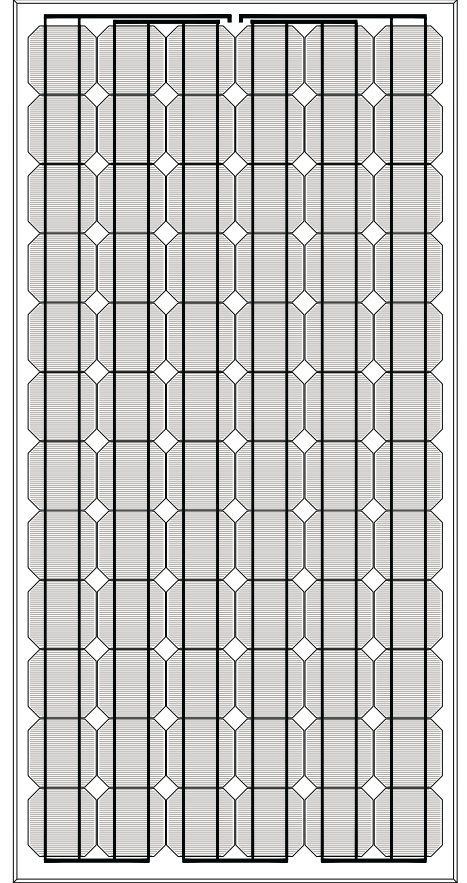
All ATERSA products are manufactured according to strict quality procedures as dictated by the ISO 9001 certification that the company obtained in 1997. This series of modules complies with European directives 89/336/EEC and 73/23/EEC, and disposes of TÜV certifications for IEC 61215 accomplishment for its use in systems of up to 700V DC. The IEC 61215 requires -among other trials- thermal cycle testing of 200 cold-hot cycles from -40°C to +85°C, mechanical load tests, as well as hail resistance trials consisting of impacting the module eleven times with a 25.4 mm diameter ball at a speed of 82 Km/h.

The junction box QUAD is TÜV Class II 1000V certified and has Ip54 protection, which provides the system a good insulation against humidity and bad meteorology. The box could fit wires with an outer diameter in the range from 4,5mm up to 10mm.

These modules are supplied with asymmetric lengths of cable, with a copper section diameter of 4 mm, and an extremely low contact resistance, in order to obtain minimum losses due to voltage drops. They comply with all the SC II TÜV requirements for not only flexibility but also double insulation and high resistance to UV light. All this makes the cables suitable for their use in outdoor applications.

GUARANTEE

A GUARANTEE of up to 25 years on output power and 3 years for manufacturing defects. (For more detailed information of the terms and conditions of the guarantee, consult our web page: www.atersa.com).



CHARACTERISTICS

The electrical data reflect the typical values of the modules and laminates A-160M and A-170M measured at the connector outlet at the end of the manufacturing process.

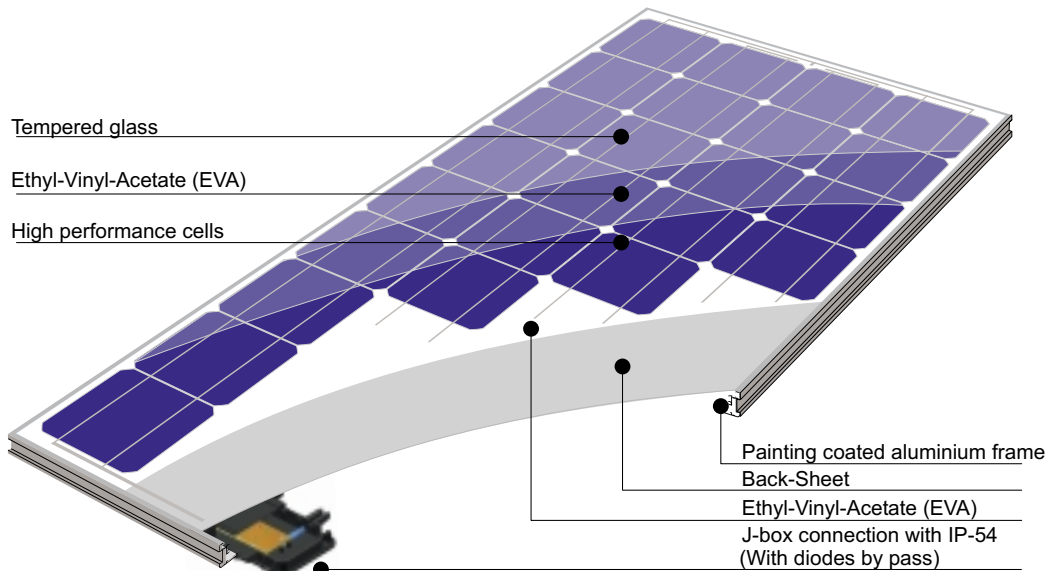
These measurements are made in accordance with ASTM E1036 and corrected to standard test conditions (STC): radiation 1KW/m², spectral distribution AM (air mass) 1,5 ASTM E892 and cell temperature of 25°C.

The power of the solar cells is variable at the end of the production process. The different power specifications of these modules reflect this dispersion.

Crystalline cells can suffer photon degradation during the first months when exposed to light, which could decrease the maximum power value of the module by up to 3%.

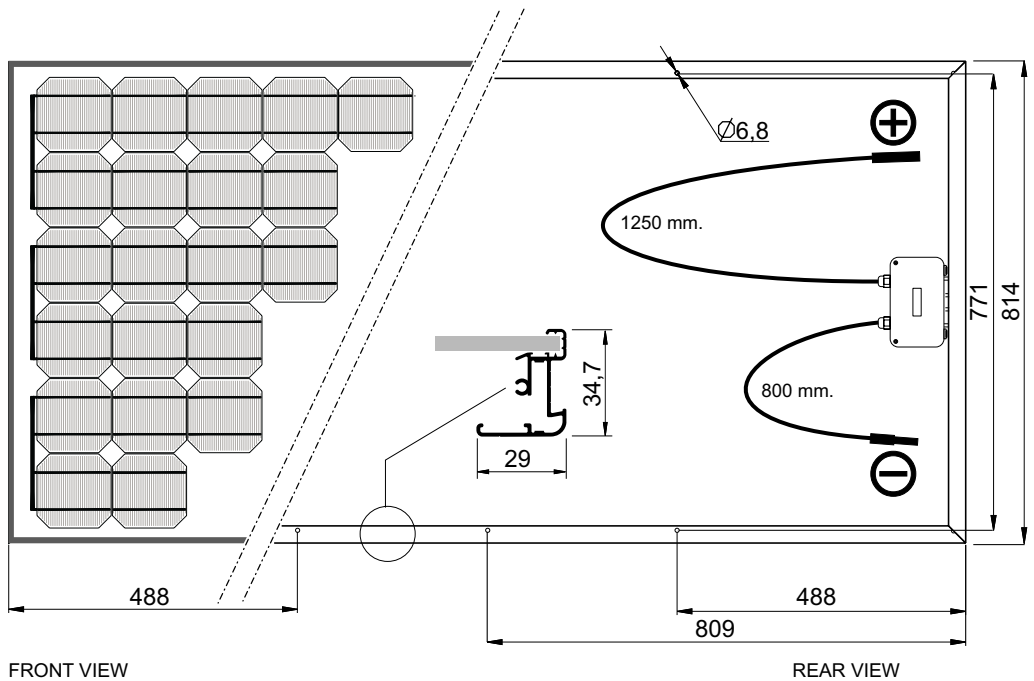
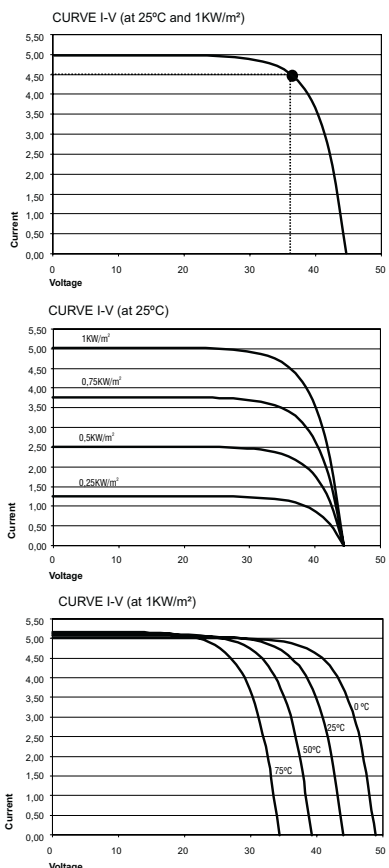
In normal operating conditions, the cells can reach a higher temperature than standard laboratory readings. TONC is a quantitative measurement of this increase. The measure of TONC is made in the following conditions: radiation of 0,8KW/m², room temperature of 20°C and wind speed of 1 m/s.

As the paint on the frame is an electrical insulator, it is necessary to erode the contact point with the earth wire to ensure the continuity to earth.



ELECTRICAL CHARACTERISTICS	A-160M	A-170M
Peak power (W at test -2+5 %)	160 W	170 W
Number of cells in serie	72	72
Max. Power current (Imp)	4,50 A	4,75 A
Max. Power voltage (Vmp)	35,70 V	35,80 V
Short circuit current (Isc)	5,00 A	5,10 A
Open circuit voltage (Voc)	43,90 V	43,95 V
Thermal coefficient of Isc (α)	2,00 mA/°C	2,00 mA/°C
Thermal coefficient of Voc (β)	-194,40 mV/°C	-194,40 mV/°C
Max. Voltage system	700 V	700 V
PHYSICAL CHARACTERISTICS		
Dimensions (mm.)	1618x814x35	1618x814x35
Weigh (approx.)	14,80 Kg.	14,80 Kg.
Electrical specifications measured at STC. TONC: 47±2°C		
NOTE: Data contained in this documentation could be changed without previous advice.		

CURVES MODEL A-160M



MADRID 28045
C/ Embajadores, 187-3º
tel. +34 915 178 580
tel. +34 915 178 452
fax. +34 914 747 467

CATARROJA (VALENCIA) 46470
Polígono Industrial
Camí del Bony, 14
tel. +34 961 278 200
fax. +34 961 267 300
e-mail: atersa@atersa.com

CÓRDOBA 14007
C/ Escritor Rafael Pavón, 3
tel. +34 957 263 585
fax. +34 957 265 308