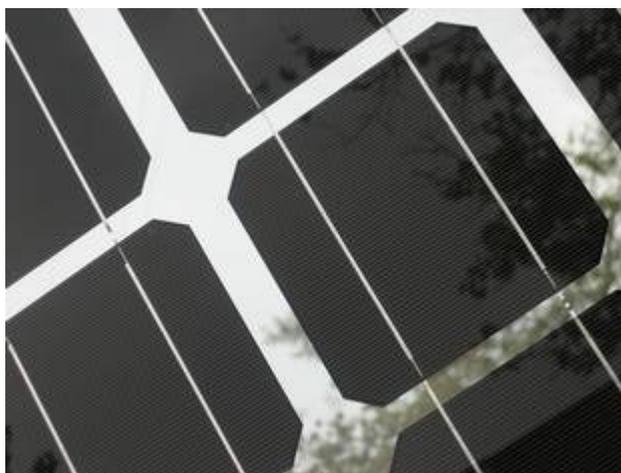




VIDURSOLAR, S.L.

VIDURSOLAR GLASS-GLASS PV-MODULES

PRODUCT DESCRIPTION



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1. The company VIDURSOLAR

VIDURSOLAR S.L. is a commercial company of MANUFACTURAS TARRIDA, S.A., leader in tempered and laminated glass with the brand VIDUR since 1962.

The position of this company in the glass sector has permitted the development of a new product with the highest quality standards in order to achieve maximum customer satisfaction.

VIDURSOLAR is profiting from this important experience in the construction sector for offering a high quality PV product especially concerning its constructive properties.

2. VIDURSOLAR glass-glass PV-modules

VIDURSOLAR is an innovative photovoltaic (PV) module for architectural integration that transforms solar radiation into electricity.

It's a high-tech construction element that substitutes other conventional construction elements taking over the same functions in terms of security, solar protection, thermal and acoustical isolation but, additionally, incorporating an innovative, esthetical and ecological component. Thus, it unifies traditionally proven concepts in the construction sector with modern technology for the edification of the future.

Our PV-modules are especially conceived in order to satisfy highest quality standards in construction. They are CE marked for construction products, obligatory from 1st of March 2007 on and can be denominated "Laminated Safety Glass" according to EN 14449:2005.

We use PVB as interlayer, material traditionally used in the construction sector for laminated safety glass due to its special advantages in robustness. So, these PV modules are especially indicated to be used in overhead glazing applications (complies with German reglamentation established in TRLV).

VIDURSOLAR offers custom-made solutions for an innovative architecture with a broad range of possibilities in product finish, forms and electrical configurations.



2.1. Constructive characteristics

VIDURSOLAR PV-modules are formed by two tempered glass panes and the PV cells encapsulated in-between. The transparency of the module depends on the distance between the cells. The composition of the VIDURSOLAR PV module is the following:

- Front pane: 5mm extra white tempered security glass with polished edges
- Encapsulant: PVB (polivinylbutiral) of 0,76mm
- PV cells
- Encapsulant: PVB (polivinylbutiral) of 0,76mm
- Rear pane: 5mm float tempered security glass with polished edges

The distribution of the PV cells is flexible and is agreed on with the client for each project.

VIDURSOLAR PV modules can be mounted with any conventional façade system.

2.2. Electrical characteristics

The design of the electrical characteristics of the module are realised according to the client's specifications. In this process the type of available cells, their number, distribution and module connection type is being selected.

The electrical connections can be done either by back-side junction box(es) or with edge connectors. In all cases by-pass diodes for prevention of local hot-spots are

incorporated. These diodes, generally are placed inside the laminate in order to achieve high flexibility in collocation of the edge connector designed to be hidden inside the support structure.

The data sheet that accompanies the delivered product the following basic electrical data are indicated:

- Nominal power
- MPP current
- MPP voltage
- Short circuit current
- Open circuit voltage



All these data are subject to fabrication tolerances of +/- 5%, unless otherwise stated in the offer or contract documents) and refer to STC (radiation of 1000 W/m², 25°C and solar spectrum AM 1,5).

2.3. Design possibilities

VIDURSOLAR PV-modules are produced on a custom-made bases according to specifications of the client and are adaptable to a broad range of design parameters:

- The maximum dimensions for rectangular modules are 1,6m x 2,6m. For safety reasons a 30 mm security distance between edge and active parts of the module has to be kept.
- The standard glass thickness is 5mm. In special cases upon glass thicknesses in the range of 5mm to 10mm can be taken into account.
- The shape of the module is completely flexible, e.g. triangular or circular modules are possible to be fabricated.
- According to the mounting system chosen the necessary mechanical treatment of the module can be done, e.g. holes for mounting with "spider"-systems.
- Possibilities for finish and design are wide fold:



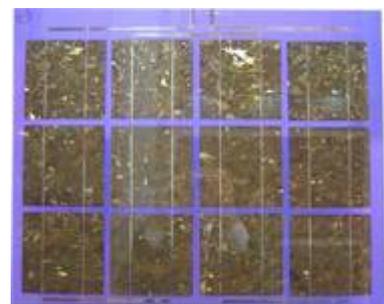
- * Screen printing or other painting according to architectural design on front, rear or both glass panes. Combinations between screen-printing and cell-strings are possible.
 - * Different sizes of front and rear pane according to constructive specifications.
 - * Transparency of the module according to required solar protection degree. This can be done either by concrete distribution (density) of PV cells in the module or the finish or type of the rear pane.
 - * Coloured or otherwise treated rear pane. This is possible either with coloured translucent PVB or opaque paint in order to have different effects.
 - * Mono- or poly-crystalline cells, also coloured cells or transparent cells offer interesting options for architectural design.
- ?? Design as laminate or isolating glass for better thermal behaviour (see photo on the right)



Mono-crystalline transparent cell
Orange PVB



Mono-crystalline cell
Blue and acid effect PVB



Polycrystalline golden cell
Violet PVB



2.4. Identification

Each module is registered and clearly identifiable with its serial number. The model is identified by VSxxx indicating transparency followed by Cxxx for the number of cells and Pxxx for the nominal power.



2.5. Norms and certificates

- CE marking – construction products: Our PV-modules have passed the tests corresponding to the norm EN 14449 and can be denominated “laminated safety glass”.
- Our modules are designed and fabricated according to the norm EN 61215 and IEC 61730 (certification in process).

2.6. Warranty

Except in special cases, VIDURSOLAR PV-modules are covered by a warranty of 5 years for fabrication and material defects. 90% of the power output is guaranteed for 10 years and 80% for 20 years.



3. Photos





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