

The ViaSolis Glass/Glass modules

Bringing innovations into the settled market and creating novel demands that did not exist before

In the late 90's a typical PV module warranty lasted about 5 years but now even 10-15 years warranty does not look appealing. Not only durability, but also the quality of standard PV modules no longer meets the expectations of today's customers. Constantly improving product manufacturing technology and quality encourages solar users to require the best from market. To meet customers' needs, ViaSolis presents modules, featuring high panel efficiency, excellent durability and innovative design market.

What about ViaSolis modules?

To meet novel demand of PV market, ViaSolis merges and utilizes best achievements from PV, glass processing & lamination, automotive as well as insulated glass manufacturing industries. By stepping aside from the use of polymer based back sheet and combining two sheets of thin glass with thermo-sealing technology, new modules with 30-40 years longevity are produced. Via Solis advanced glass/glass modules can be fully customized for non-standard PV installations, representing a wide range of shape, size, glass features and colours, as well as transparency, capable of meeting ambitious architectural and energetic self-sufficiency ideas.

Advantages of the ViaSolis module are reached by utilizing cutting-edge technologies which combine such features as follow:

- Back side glass instead of polymer-based back sheet
- Higher heat transfer coefficient
- Edge-sealant technology
- PVB bonding
- Stress-free PV cells lamination
- Exceptional manufacturing flexibility

For which markets is the new panel suitable?

Due to exceptional manufacturing flexibility, Via Solis PV modules are ideal for both conventional roof-mounted, façade-mounted, ground-mounted PV installations as well as non-standard PV installations and Building Integrated projects. Markets of extreme temperatures with strong fluctuations (day/night) and higher humidity would be perfect for ViaSolis modules.

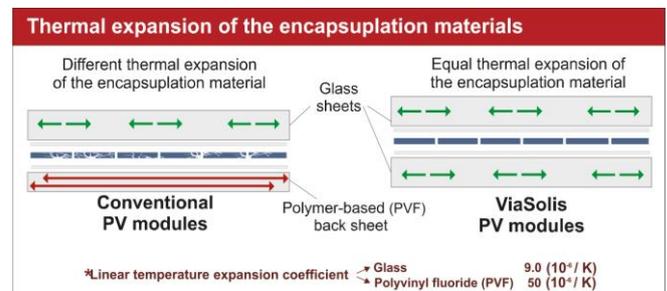
What advantages does back side glass instead of polymer-based back sheet offer?

The results of complex practical tests of automotive industry have shown that glass/glass technology is a durable and a safe solution. In addition, it has been proved that glass itself absorbs the majority of UV-B rays and any remaining UV-B together with most of the UV-A rays are absorbed by the PVB bonding layer resulting in **UV protection**.

Therefore, going hand in hand with innovations, for PV cell lamination ViaSolis successfully adapted technology of automotive windshield manufacturing.

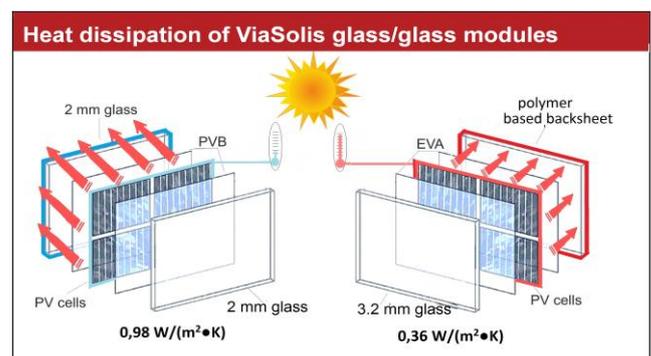
The use of thin glass increases light transmission. This corresponds to **4% increase in yield** (kW/h per kW/p) or in other words **to a reduction of all optical losses in a solar module by 40 %**.

The use of the same material for both sides of PV module also means equal thermal extension of the encapsulation materials ensuring no cell breakage. Due to this tantamount material design, ViaSolis PV module **withstands higher stress caused by fluctuations of temperature (day/night), heavy loads and strong wind**.



The heat transfer coefficient

In addition, ViaSolis glass/glass modules have **better cooling properties**. The glass is 3 times better thermal conductor (0,98 W/(m²•K)) than plastic back-sheet used for conventional modules (0,36 W/(m²•K)) ensuring higher efficiency of the glass/glass PV module.

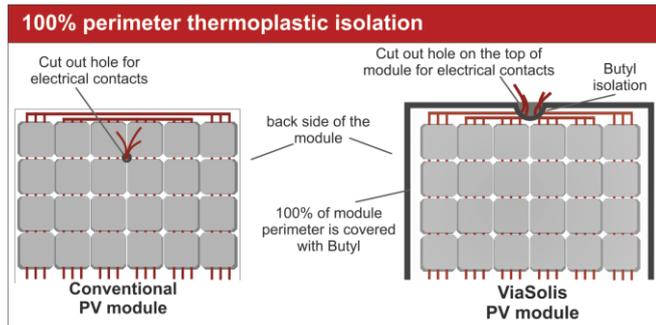


The 1 °C decrease of module temperature increases the p-CI module efficiency of 0.34-0.42 %.

What advantages does edge-sealant technology offer?

Nowadays PV industry is struggling due to weak waterproofing and delaminating problems as glass industry did it for years. The breakthrough came when Isolating-Glass (IG) unit production technology has been invented. ViaSolis applied particular experience and implemented Isolating-Glass (IG) production technology, which durability has been approved for more than 50 years for PV module manufacturing.

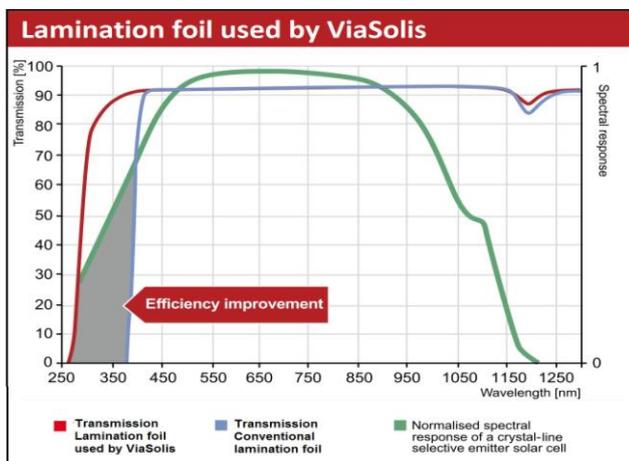
Hence, the perimeter of ViaSolis module is 100% covered with thermoplastic insulation (Butyl), which eliminates the access of moisture to the PV cells and guarantees **100% water resistance and up to 30-40 year performance life time.**



Electrical contacts derived through specially cut out hole on the top of the module are also secured by butyl. In standard modules, contacts derive from cut out holes on the back of the module. Through this hole, there is a possibility that water will ingress into a PV module and corrode the metal contacts and interconnects resulting in dramatically reduction of the lifetime of the PV module.

What advantages does PVB bonding offer?

For cells lamination, ViaSolis uses special lamination foil developed for glass/glass PV industry (PVB) which increases a spectrum of use of light waves from 280 nanometres in length. Meantime, for the most modules EVA foil is used which transmission of light in the wavelength starts from 350 nm that is almost 20% shorter comparing to PVB. Wider light spectrum utilization measurably improves cell efficiency and guarantees **up to 4 % higher yield.**



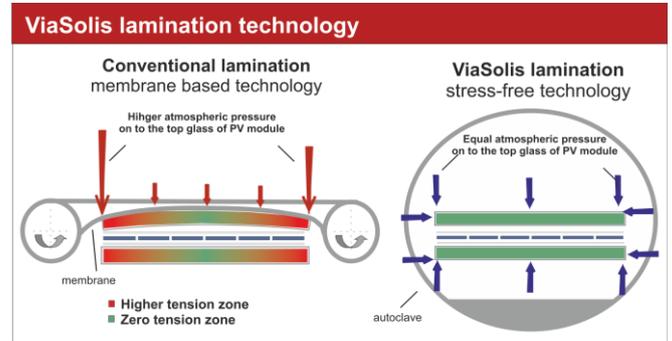
PV modules manufactured with PVB satisfies the **highest safety standards applicable to glazing in buildings.** It is a tried-and-tested product for the manufacture of laminated safety glass distinguishing by the excellent resistance to heat, UV light and environmental influences.

What advantages does the stress-free PV cells lamination offer?

The lamination of ViaSolis modules is performed without mechanical load impact to the PV cells which is essential to **ensure the longevity and stable performance** of the semiconductor.

UAB Via Solis
 Production, Research & Development
 Mokslininku str. 6A
 08412 Vilnius / Lithuania
 Tel. + 370 5 2658811
 info@viasolis.eu

ViaSolis is an international manufacturer of PV glass and provider of solar energy solutions, operating one of the most advanced production facilities in EU. We merge and utilize best achievements from PV, glass processing & lamination as well as insulated glass manufacturing industries. Having in house R&D capabilities and working together with the partners from construction industry, we are able to provide the whole project solution.



Low vacuum & higher atmospheric pressure technologies are based on the experience of glass industry ensuring **increased lifetime of the modules.**

What advantages does exceptional manufacturing flexibility offer?

Due to exceptional manufacturing flexibility, Via Solis photovoltaic modules can be manufactured according to the needs of individual clients by exploiting the possibilities of the colour spectrum, size, desirable shape, different light transmission or insulating characteristics.

What makes customized ViaSolis PV modules an attractive choice is its field of application. In addition to conventional roof-top or free-field installations, glass/glass modules can be used to **replace facades cladding, balcony balustrades, awnings and sunshades, roof integrated systems.**

Thanks to customized ViaSolis PV modules, investors, architects and engineers are provided with completely **new opportunities to deal with energy supply and environmental issues.**

These solutions are suitable for all kind of buildings. It enables to deliver significant part of energy consumption and in some cases can be a single solution to **achieve Net Zero Energy building (nZEB) status.**

How will the consumer benefit from ViaSolis Glass/Glass modules?

Experience taken from other industries and innovative technologies used by ViaSolis for new generation PV module manufacturing give us confident that the performance of our PV modules **easily exceeds 30 years, which is subject of the ViaSolis product warranty.**

Warranty provides solar investors and purchasers of ViaSolis Glass/Glass PV modules with **absolute peace of mind that their investment is sound and well-protected.**

Fully customized glass/glass modules enable to create an **aesthetically appealing building with distinctive "architectural features"** and **high performance in terms of sustainability.**