

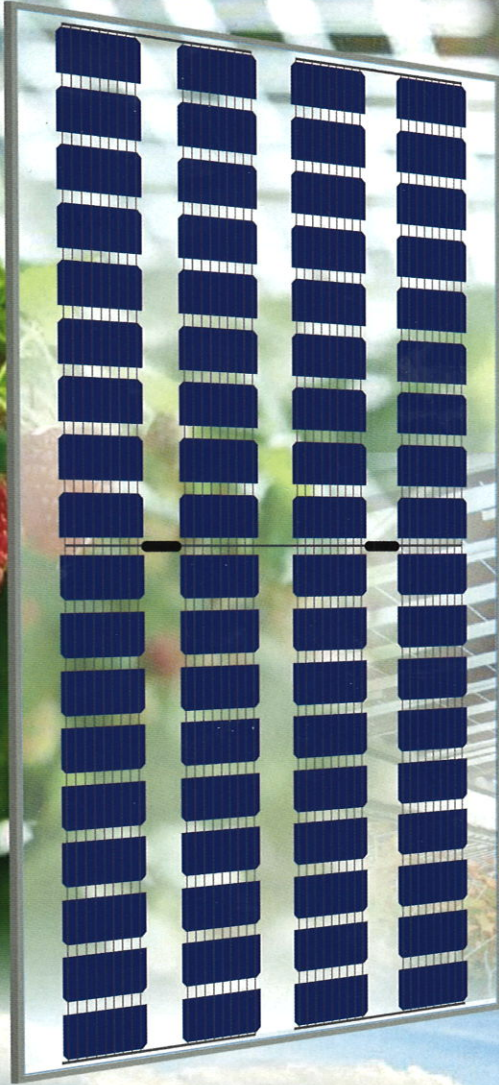
**GRID
PARITY**
next generation photovoltaic



powered by



CERTIFIED DOUBLE GLASS MODULES ACCORDING
TO EN12600 FOR OVERHEAD MOUNTING



**MADE IN
EUROPE**



Transparency

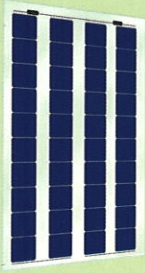
40%

40%

40%

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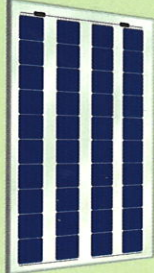
50%



AG-M40
AG-B40

DOUBLE GLASS

Size I



AG-M40
AG-B40

DOUBLE GLASS FRAME

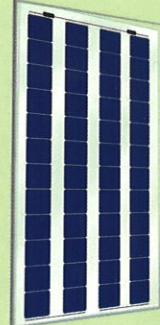
Size I



AG-M48
AG-B48

DOUBLE GLASS

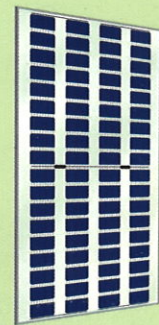
Size II



AG-M48
AG-B48

DOUBLE GLASS FRAME

Size II



AG-M72
AG-B72

DOUBLE GLASS FRAME

Size II



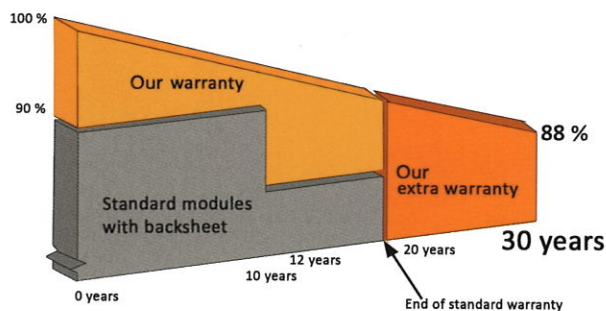
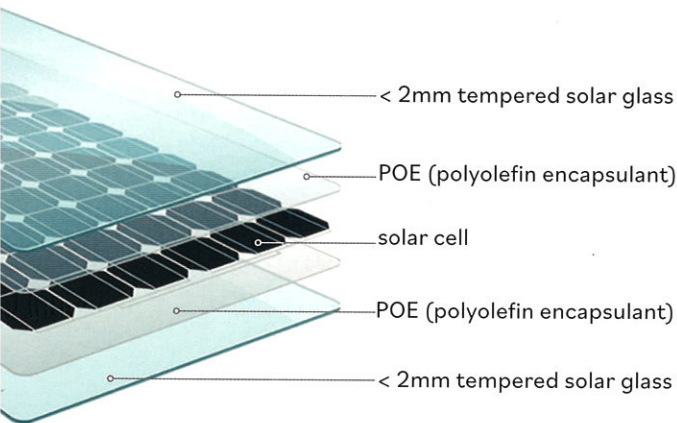
AG-M120
AG-B120

DOUBLE GLASS FRAME

FRAME DESIGN

Size I

2mm tempered solar glass with extremely durable anti-reflecting coating



Outstanding properties of our Modules

- Slim Module Design - Ultrathin - Ultralight
- High transparent double glass design
- Outstanding performance in case of wind/snow load
- Resistant to environmental influences
- Easy Cleaning
- No Micro Cracks
- Fire Resistance
- Predominant low light performance
- Extended Guarantee
- Positive power output tolerance (plussorting)
- PID free



Test report
EN12600



Our Premium Greenhouse Module

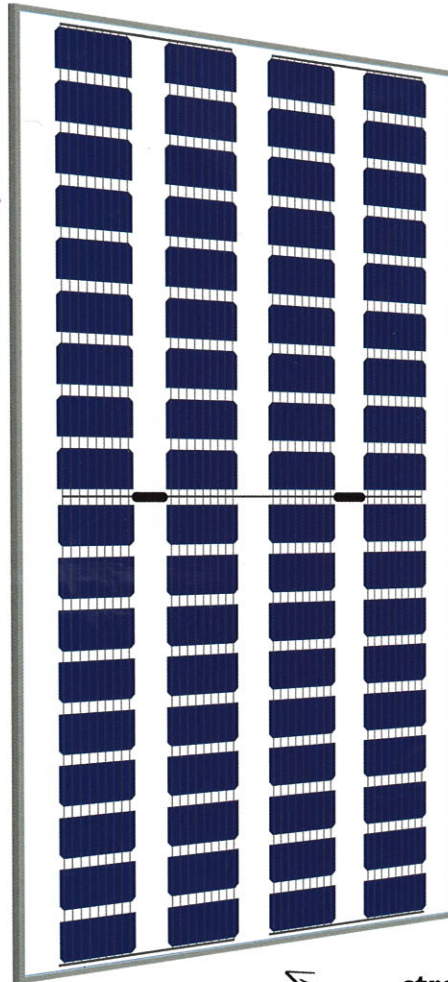


combination of **energy generation** and **plant protection** for successful food production

Semi-transparent glass-glass modules provide the optimal combination of shade and light for successful agricultural cultivation in sunny regions

Laminated safety glass made of 2x2mm tempered solar glass

Hail proof through laminated safety glass



High **light transmission**

Waterproof assembly!

Direct use of the **self-produced energy**

Plants are protected from harmful UV-rays

strong aluminum frame (optional without frame)

1049 x 2111 x 35 mm
± 2 mm



Case study: Generation of solar energy for water pumps

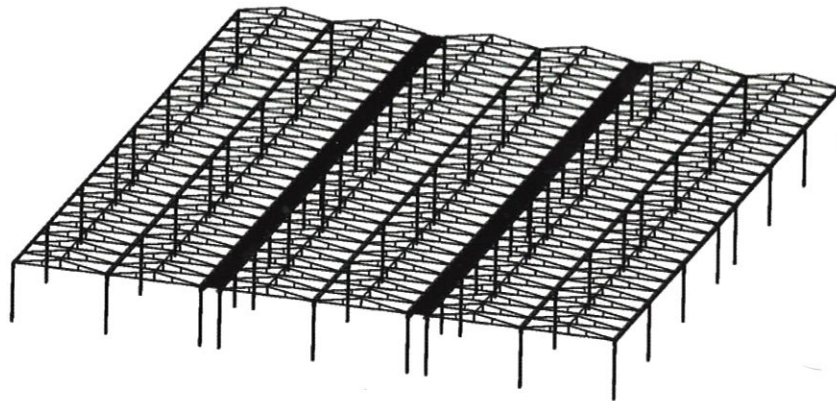
Heliopolis University (2014)

- 15 kWp with 84 Almaden Premium Glass- Glass Modules M40
- 40% Transparency provides optimal light transmission for plant growth
- 3-4 harvests a year
- Direct use of electricity for water pumping and desalination



Wahat Desert, Egypt (2014)

- 53 kWp with Almaden Premium Glass- Glass Modules M40
- 40% Transparency provides optimal light transmission for plant growth
- 3-4 harvests a year
- Energy generation is sufficient for running 2 Lorentz pumps with 15 HP and 25 HP
- The water which is moved from great depth (pump 1) is directly pumped into the desalination system (pump 2)



Resistant modules against any climate!



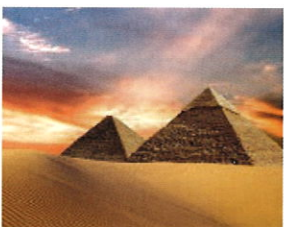
Cold temperature with snow:

Low temperatures are prevailing in countries of the northern hemisphere but also during the night in desert areas. All materials have to withstand temperatures below 30°Cel. as well as fast changes to high temperatures up to 85°Cel..



Salt water:

Salt and also air-borne chemicals are very aggressive and a threat to the modules materials. Glass is the first choice to withstand these threats.



Desert climate:

Desert areas include very high temperatures of up to 85°Cel. in the inside of the module. Temperatures change in fast cycle. In many cases the material doesn't withstand these changes over their lifespan of 30 - 50 years. As a result, Almaden's modules loose very little power compared to other cells.



Hot and humid climate:

Is a special threat to modules. A chemical reaction with most foils like EVA takes place and as a result citric acid builds up. Consequently, the temperature rises and the acid boils, which destroys the modules over months and years. Almaden established a unique technique in order to oppose these threats and protect the cells.

Unique technical features

- AgriPV® offers a unique solution: a combination of energy generation and plant protection for successful food production
- Harvest is protected from harmful UV-rays
- Direct use of the self-produced energy for water pumps, water desalination as well as cooling systems or systems for the production process. Alternatively the input can be fed into the home- or local network
- Protection from evaporation reduces the need for water up to 50%
- AgriPV® increases the yield significantly
- Semi-transparent glass- glass modules provide the optimal combination of shade and light for successful agricultural cultivation in hot regions
- Another way of using our greenhouse construction is to cover aquaculture ponds



AgriPV® is an innovative solution to solve one of the biggest problems of mankind: hunger and a lack of energy



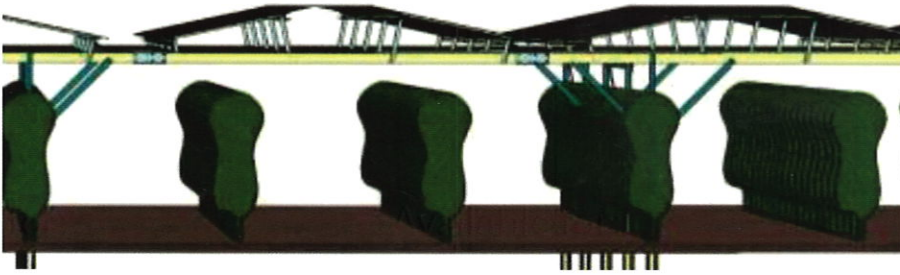
AgriPV combines the production of food (agricultural and horticultural use) with the generation of electricity by photovoltaic on the same area.

GridParity has been involved in this economically interesting field for many years. After all, the same area usually generates far more than double the benefit.

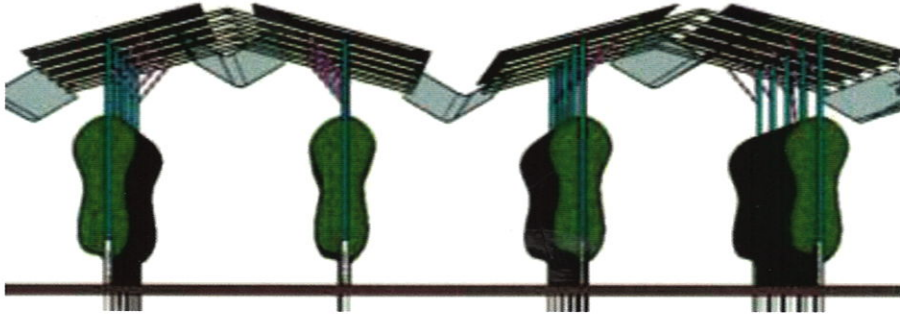
The myth that agricultural yields are declining has already been refuted in several projects.

Installation Options

1. AgriPV Roof System



2. AgriPV Row System



Available for:

- east-west orientation
- south orientation



AgriPV Fence System



We use the following high-quality materials for our PV PowerWall:

- Aluminium profiles with high-quality anodised coating
- AGORA Premium double glass PV modules with bifacial dual use
- In the case of outdoor plants (PV Fence), steel profiles are rammed into the ground to ensure stability

Our AgriPV Fence System enables virtually double yield:

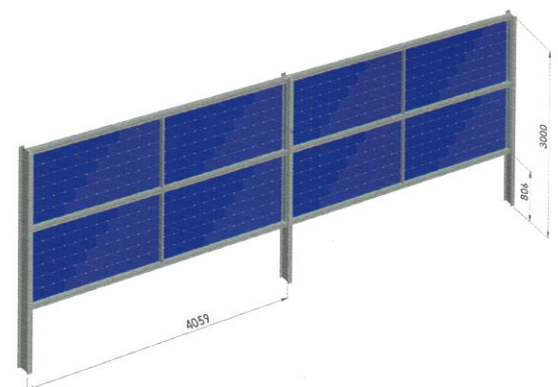
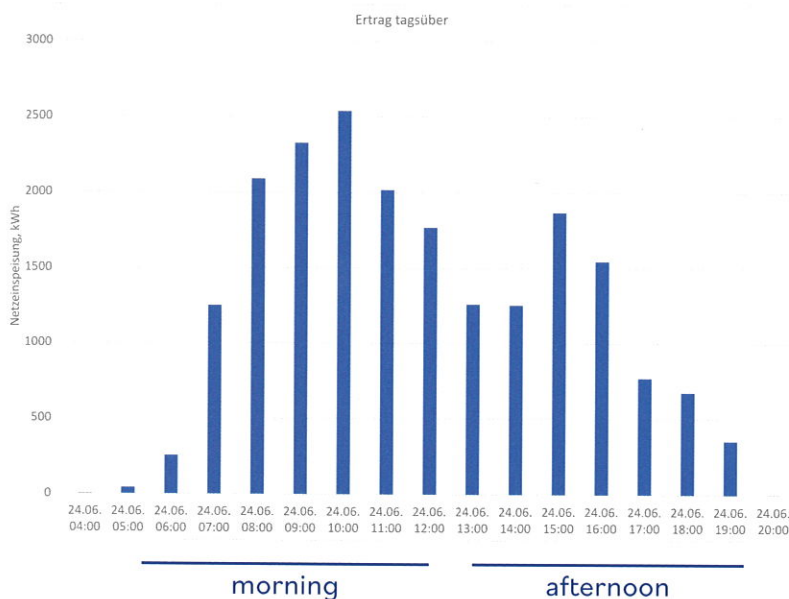
Both those from agricultural use, and from a substantial electricity yield.

The bifacial modules used have an output of up to 380 Wp at the front.

Since we use special cells, the output on the back is only slightly lower.

This is important for a vertical installation, as the sun shines on both sides one after the other during the day.

The yield curve is also different from a „normal“ mounting showing two distinct peaks. This is clearly visible in the curve shown here.



sample for a PV Fence with frameless double glass modules of size II

Real figures calculated with PVsyst®

GridParity AgriPV Systems for dual use in agriculture

Turn-key solution / Structure in
cooperation with Zimmermann

- High quality, state-of-the-art PV system for multiple dual use scenarios
- Installation and commissioning of the PV system is fast, easy, and safe
- Project-specific engineering, calculations, and proof of structural design
- High flexibility in design and adaptation of customer requirements
- Geological survey provides pile depth calculations and a ramming plan
- Assembly and maintenance of the system is possible with standard tools
- Moderate tolerances enhance ease of installation - deviations can be easily be aligned

