

**Knowledge. Innovation. Sustainability.**



DA||GLASS

# Changing standard glass into powerful material

nano  
barren



**NANO-BARREN™**  
Antiseptic glass



**BIPV technology**  
photovoltaic panels



**Non-Glare**  
glass



**Diffused glass**



**Diamond glass**



**Anti-reflective**  
glass

A close-up photograph of a person wearing blue nitrile gloves. They are using a pair of metal tweezers to hold a small, rectangular glass component. A torch is being used to heat the component. The background is blurred, showing a workshop or laboratory setting with various tools and equipment.

DAGLASS

# Quality means a lot more than making a good product

DAGLASS is a globally operating company that has been successfully processing the flat glass. Using its unique technological know-how, which has been constantly evolving for the needs of ever-changing market needs, DAGLASS manufactures and processes the most technologically advanced glass.





DA||GLASS

# We use innovative technologies

We specialize in advanced technologies of the flat glass processing. Changing physico-chemical glass properties is our daily-work.



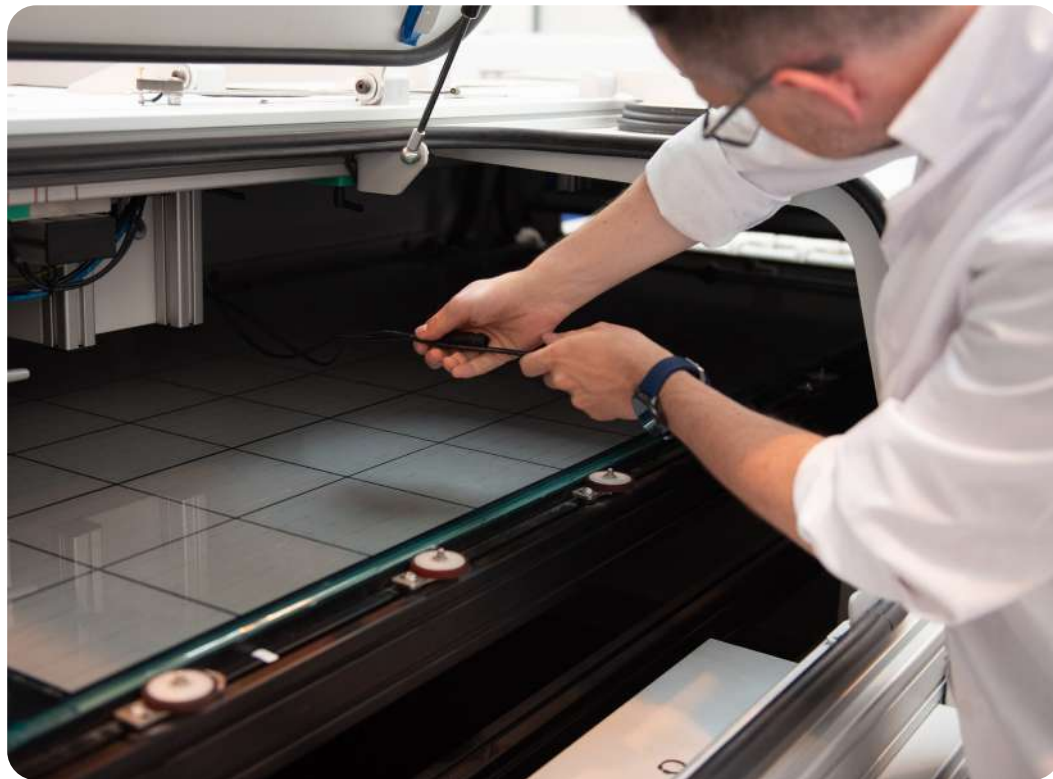
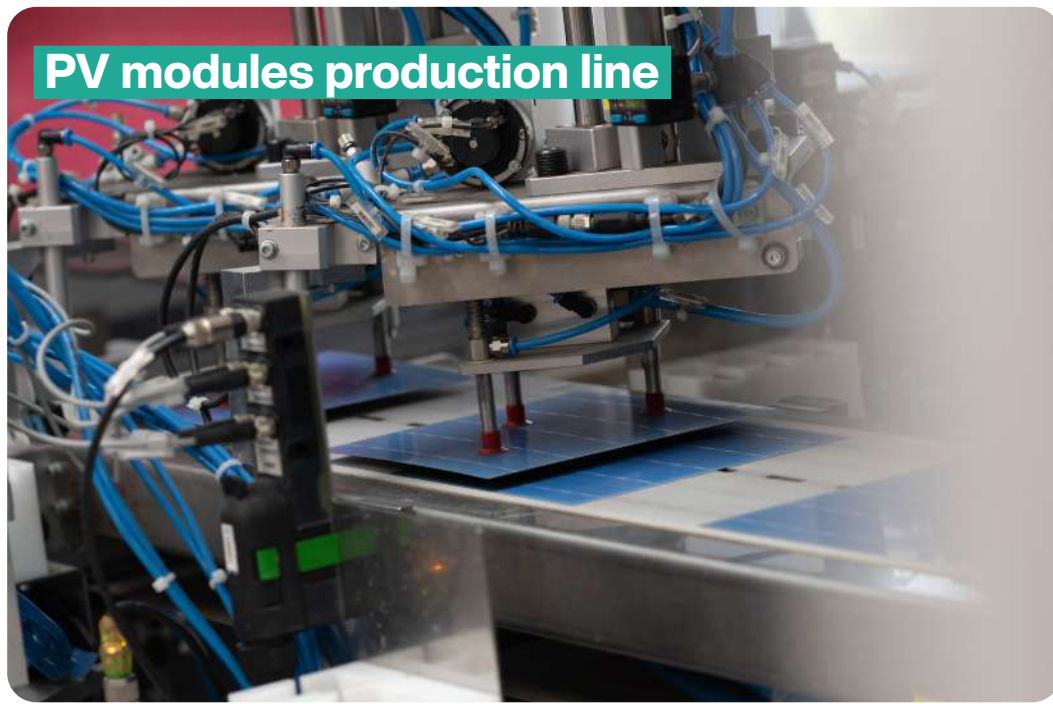
PN-EN 61730-1:2016  
PN-EN 61730-2:2016  
PN-EN 61215:2016  
PN-EN 14449  
PN-EN 13501-1 / A2-s1, d0 - for the front  
and rear layer (glass)

## ISO 9001:2015

Manufacturing photovoltaic modules

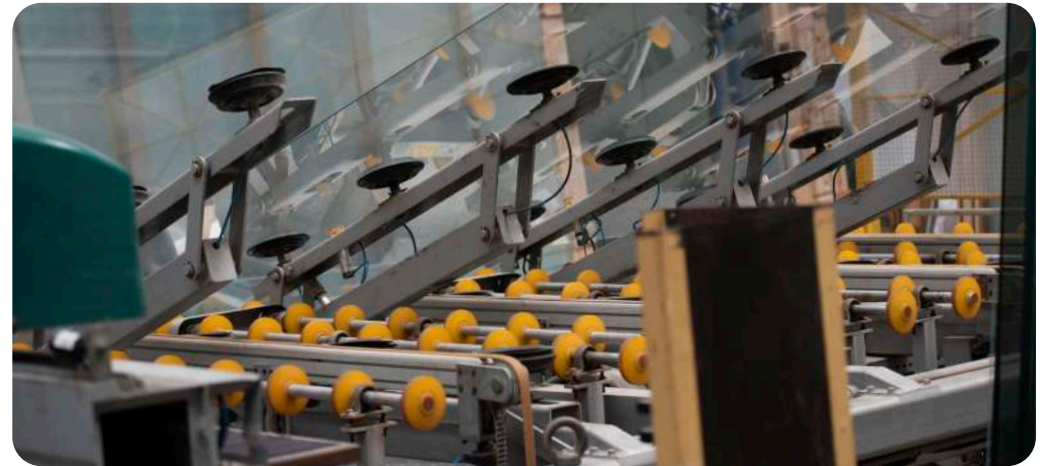


## PV modules production line





DA||GLASS



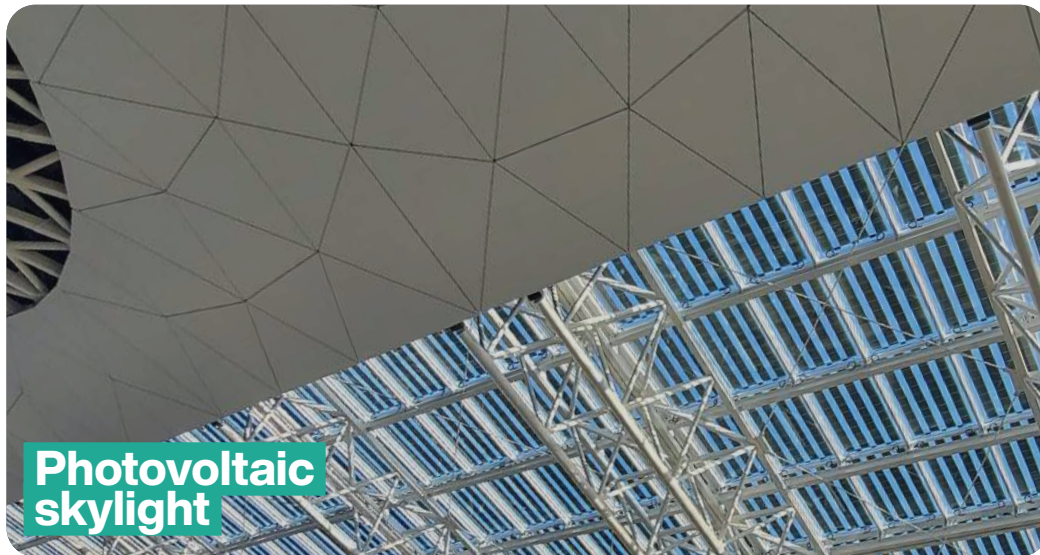




**Our ultimate aim is to provide  
better living standards.  
Let's create a better world  
together.**



# Selected projects



**Lublin (PL) Bus station**  
Roof with heated glass and LED lighting  
Output kW: 500





**Photovoltaic  
curtain wall**



**Photovoltaic  
canopy**



**Kraków (PL)**  
**Pharmaceutical company**  
Façade and canopy  
Output kW: 70

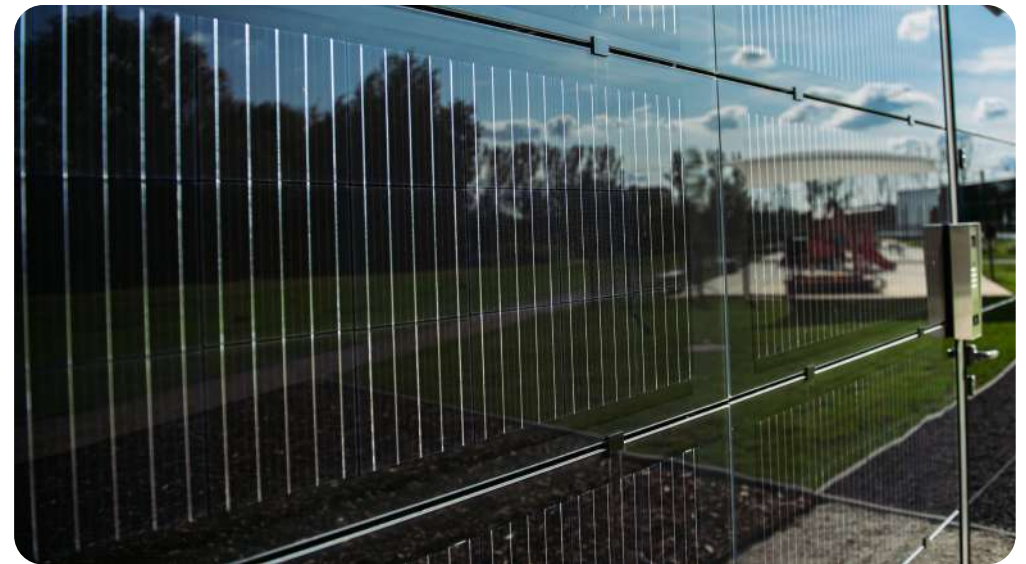




**PV ventilated  
façade**



**Photovoltaic  
louver**



**Bobrowniki (PL) Kindergarten**

Façade

Output kW: 50





**Photovoltaic  
balustrade**

## Łódź (PL) Block of flats

Balustrade



## Italy (ITA) Office building

Roof

Output kW: 13



**Photovoltaic  
"second skin"**

## Rzeszów (PL) MEDICUS clinic

Façade

Output kW: 20



## Ziębice (PL) Sports and entertainment hall

Façade and roof

Output kW: 50





# Our products reflect your goals.



**Renewable  
energy**



**Maximum  
sustainability**



**Innovative  
properties**



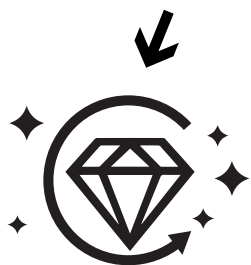
**High mechanical  
and chemical  
resistance**



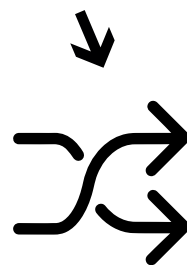
# DAGLASS solar module with unique properties



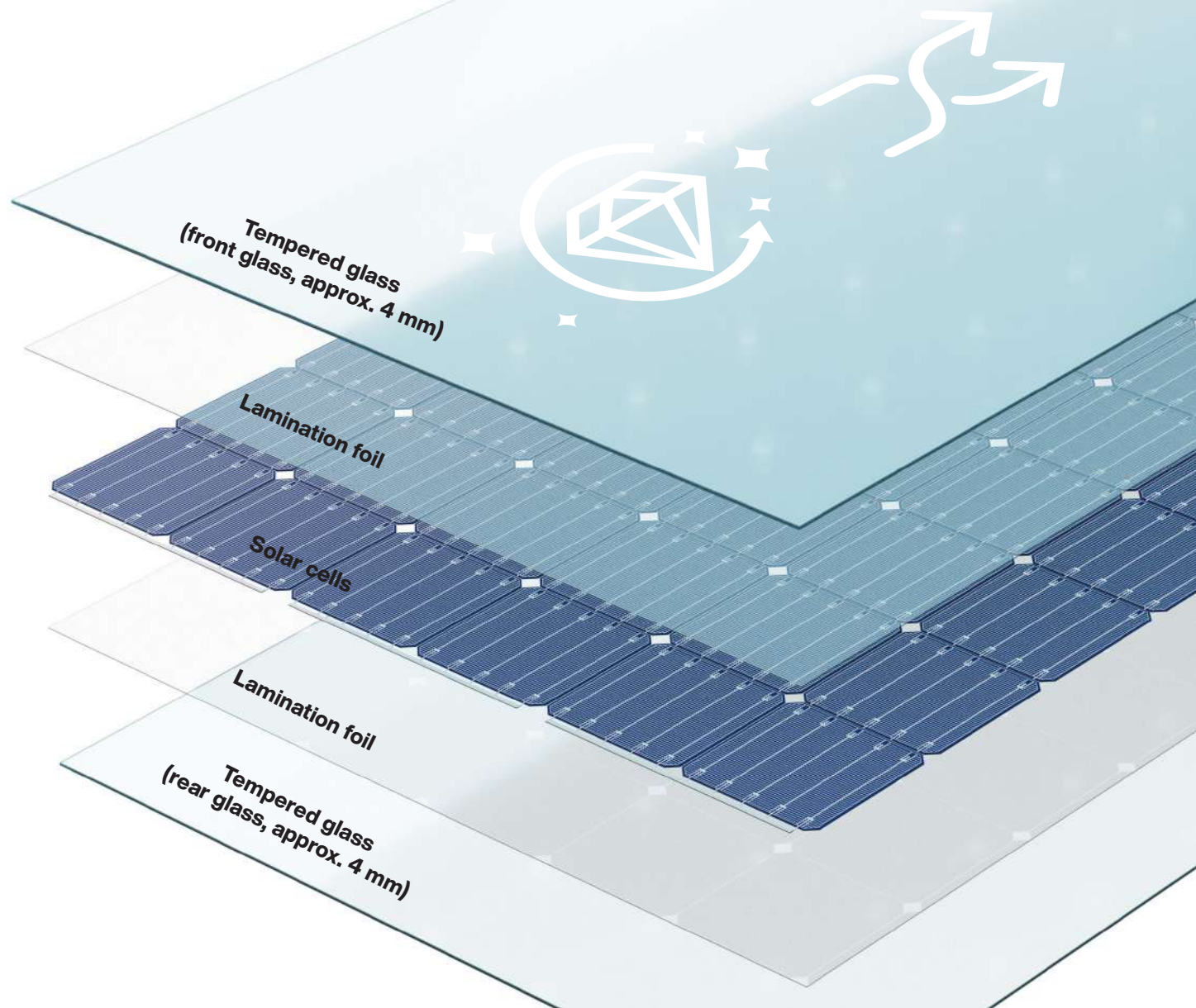
**Two panes  
of tempered  
glass with**



**Anti-soiling  
properties**



**Diffused glass with  
enhanced light  
absorption**



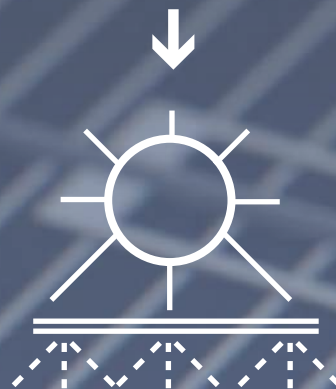




# Diffused glass



**Light dispersion in a controlled manner without loss of light transmission**



**Decreased overheating of panel**



**Self-cleaning properties**



# DAGLASS solar module Feature



Owing to the innovative technology, the glass processed by us gains completely new characteristics, including self-cleaning properties, higher light transmittance and resistance to mechanical damage and weather conditions.



4%

Higher efficiency\*



Efficiency warranty

87% after  
25-30 years



Anti-Soling



Increase  
light transmittance



High mechanical  
and chemical  
resistance



More light  
reaches cells

\* Research by the Fraunhofer CSP institute



# Photovoltaic canopies

One of the applications of BIPV panels can be photovoltaic canopies that create shadows useful for people and vehicles.

As DAGLASS glass has self-cleaning properties, you can forget about its maintenance because the wind and rain will keep it clean for you.



More shadows  
area



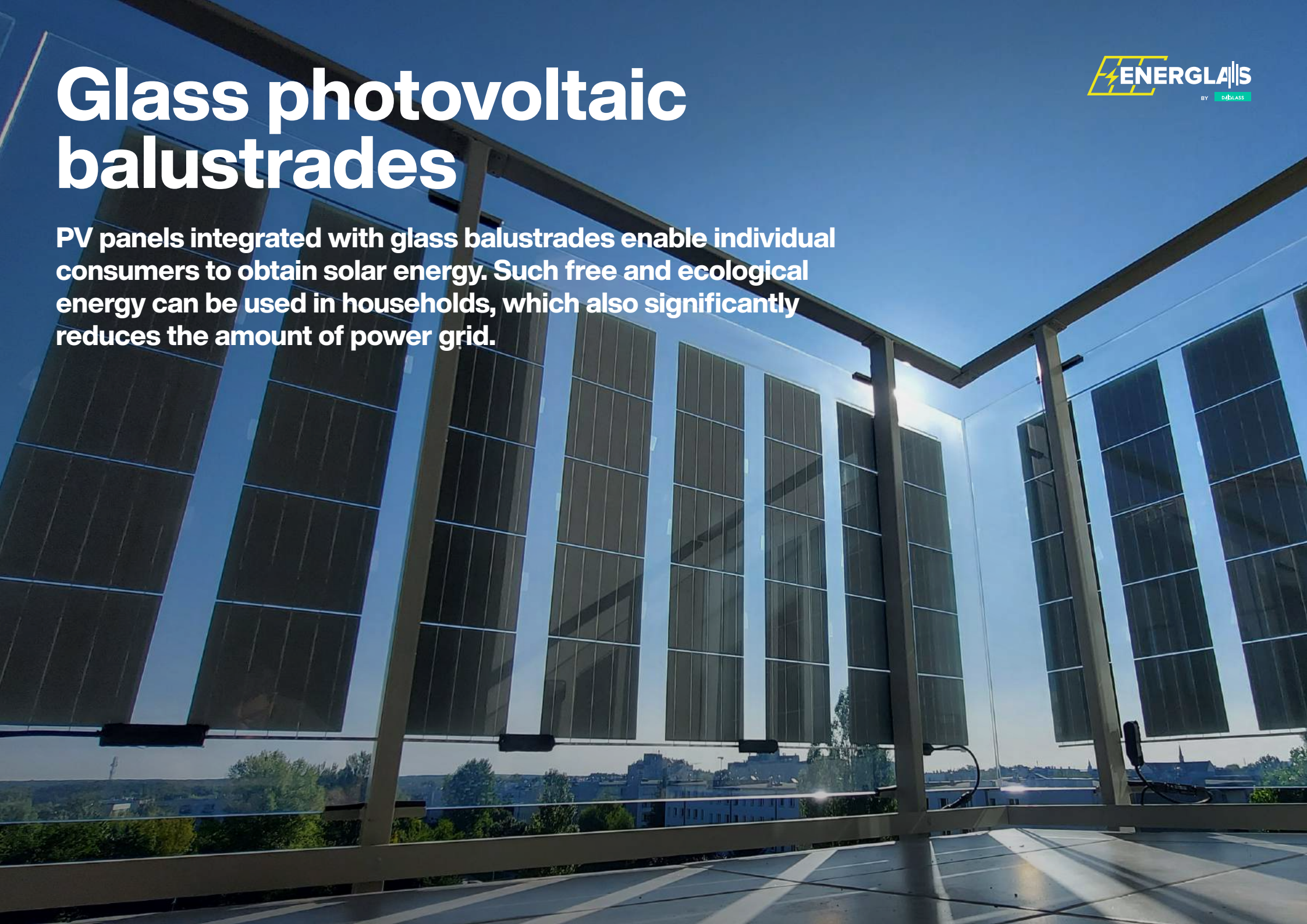
Charging  
station



# Glass photovoltaic balustrades



PV panels integrated with glass balustrades enable individual consumers to obtain solar energy. Such free and ecological energy can be used in households, which also significantly reduces the amount of power grid.





# Photovoltaic façade

The use of photovoltaic BIPV systems on the façade of a building, gives the opportunity to produce clean energy on its surface, thus, we can reduce the operating costs and expenses allocated for lighting, heating, ventilation or air conditioning. At the request of customers, the photovoltaic façade can be produced in any color from the RAL palette.



# Façade at night

**In addition, BIPV panels may be equipped with a LED module that allows the glass façade to be illuminated, thus providing a beautiful illumination of the building at night.**



# Photovoltaic farms

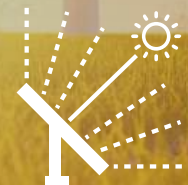
Photovoltaic farms are the future. Due to the use of our innovative glass, Energlass photovoltaic panels produce more energy compared to traditional products on the market. Two panes of glass with additional coatings mean that the amount of solar energy on the surface of the photovoltaic module is maximized, also due to the effect of reflecting rays from the ground onto the back of the module.



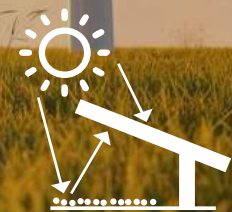
Renewable  
energy



Reduces electricity  
costs



Light absorption from  
different angles  
of incident light



Both sides  
light absorption



# Anti-Soiling Glass-Glass module

# Standard glass



**Self-cleaning diffused glass means  
from 3% up to 15% more produced energy**





# Glass-Glass Solar modules



# PV Modules (Glass-Foil)

## Protection method

Extremely durable and resistant to harmful factors due to protection by thermally tempered glass on both sides of the module.

Less durable to static loads as there is only one layer of glass on the module.

## Resistance to micro-cracks



Completely resistant to mechanical loads with reduced risk of micro-cracks as the same material is used to cover both sides of a solar panel.



Two heterogeneous materials (glass and plastic backsheet) protect the cells less well when the panel bends, which consequently leads to micro-damages.

## Fire safety



Practically non-flammable



Can be a source of fire

## Lifespan

**30-50** yrs

**20-25** yrs

## Efficiency warranty

**87%** after **30** yrs

**80%** after **20-25** yrs

## Performance drop

**0.4%** per year

**0.7%** per year



# Matte PV glass-glass module



Model: ASOL-320P-AR-DF\_GG

## ELECTRICAL PARAMETERS STC

Module	ASOL-320P-AR-G
Maximum power Pmax	320 Wp
Open circuit voltage Voc	40,14 V
Short circuit voltage Isc	9,89 A
Maximum power voltage Vmp	34,26 V
Maximum power current Imp	9,34 A
Power tolerance	-0/+5Wp

STC values measured under standard test conditions (STC): irradiance 1000 W/m<sup>2</sup>, spectrum 1,5 AM, cell temperature 25 °C

The electrical characteristics listed on the product rating label may vary slightly from the specifications due to the batch of cells used in manufacturing.

## ELECTRICAL PARAMETERS STC

Load resistance	5400Pa / 2400Pa
Application class	A
Reverse current protection	20 A

## MECHANICAL PARAMETERS

Dimensions	1710x1000 mm
Weight	34,5±0,5 kg
Front glass	4±0.2 mm tempered
Middle glass	---
Back glass	4±0.2 mm tempered
Enkapsulant	Copolymer EVA
Cells	Monocrystalline Si
Backsheet	---
Frame	---
Socket	IP68, 3 by-pass diodes
Cabling	Wires 4mm <sup>2</sup> , 2x1000mm
Transparency	H70-H90

## POWER DROP

Power drop up to 1 year	97%
Power drop up to 10 years	92%
Power drop up to 30 years	87%

## CERTIFICATES

CE Mark	Yes
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## SYSTEM PARAMETERS

Maximum system voltage	1000 VDC
Safety class	II
Mechanical load	5400 Pa
Mechanical load	2400 Pa

## LABELS

AR	Type of glass	Anti-reflective
DF	Type of glass	Diffused
MATT/BLACK	Module color (frosted matt/black matt)	
GG	Module type, glass-glass	

Example parameters of a photovoltaic module. In the case of customization of modules in terms of size, shape and color, mechanical and electrical parameters are calculated individually.



**One planet – one goal.  
Striving for making our  
common home a wonderful  
place to live.**



**Maximum  
sustainability**



**Reduces  
carbon  
emission**

**100<sup>MWh</sup>  
=  
1100  
planted trees**

**-80%**  
reduce  
the carbon  
footprint of  
your home





BY

DAGLASS

**Light has infinite potential.  
Light means development.  
Light is life.**

**ENERGLAS by DAGLASS**

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