HEVEL
ENERGY GROUP

BUILDING INTEGRATED PHOTOVOLTAIC SOLUTIONS

BIPV

HEVEL GROUP IS ONE OF THE LEADING VERTICALLY INTEGRATED SOLAR ENERGY COMPANIES AND THE LARGEST MANUFACTURER OF HETEROJUNCTION (HJT) CELLS AND MODULES IN EUROPE

10 years+

FOR MORE THAN 10 YEARS WE HAVE BEEN WORKING IN SOLAR INDUSTRY AND ESTABLISHING NEW STANDARDS ON THE RUSSIAN MARKET

ABOUT HEVEL GROUP

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The company is focused on high-tech production of efficient PV cells and modules based on advanced heterojunction technology, turnkey construction and operation of solar power plants, research and development in photovoltaics, design and fabrication of customized PV solutions.

OUR GOAL

CREATING INNOVATIVE SOLAR POWER SOLUTIONS FOR FUTURE GENERATIONS

VERTICAL INTEGRATION

Our own high-tech cell-to-module production allows to ensure the quality control thoughout the whole value chain and offer a wide range of customized HJT solutions.

CONTINUOUS DEVELOPMENT

Hevel R&D center allows to introduce new improvements and upgrades to our HJT product line while keeping up with the key market trends.

BIPV SOLUTIONS ARE A MAJOR TREND IN THE GLOBAL PV MARKET

Hevel BIPV solutions are innovative and financially feasible alternative to conventional facade cladding.

Besides power generation, Hevel BIPV solutions contribute to building aesthetics.

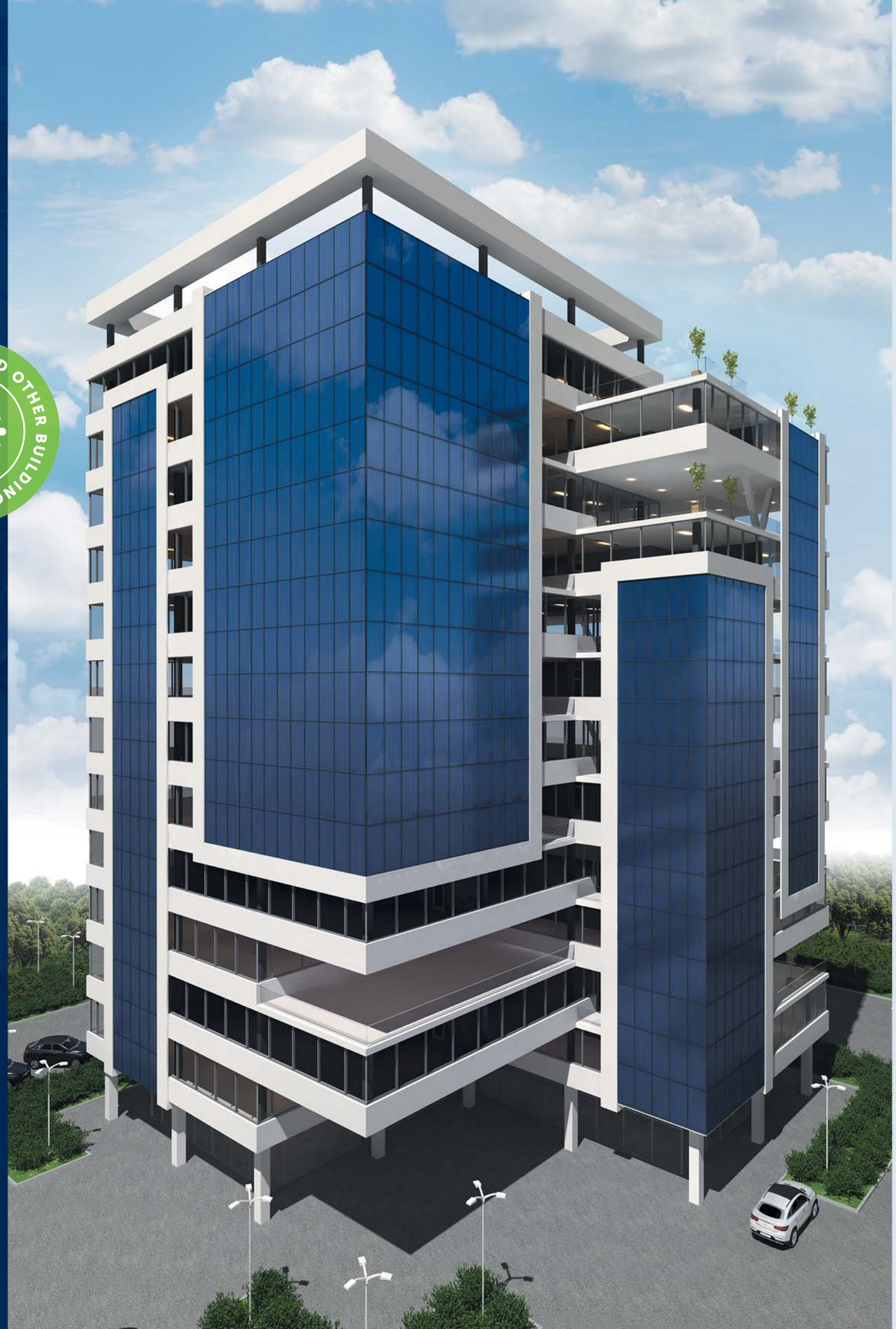
HEVEL

BUILDING INTEGRATED PHOTOVOLTAIC SOLUTIONS

FACADE SYSTEM FOR BUILDING CLADDING WITH ELECTRIC POWER GENERATION

BIPV SOLUTIONS
CAN BE USED
ON ANY TYPE
OF COMMERCIAL
AND RESIDENTIAL
BUILDINGS,
IN BOTH, GREENFIELD
OR RENOVATION
PROJECTS.

SAFE FOR HOUSES AND OTHER BUILDING TYPES



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BUILDING TYPES

- Shopping centers
- Office buildings
- Administrative buildings
- Residential houses
- Industrial facilities
- Municipal services facilities (hospitals, schools, universities, etc.)

COMPLIENT WITH
FIRE SAFETY
STANDARDS

BIPV ADVANTAGES

COST SAVINGS

Using a grid-connected BIPV solution allows to reduce the electricity bill significantly, while minimizing the risks from sudden electricity tariff spikes.

ECO-FRIENDLY

Building may be qualified for certification of compliance with the LEED, BREEAM and GREEN ZOOM international building standards, proving the commitment to sustainable development and efficient use of resources.

UNINTERRUPTED POWER SUPPLY

BIPV solutions combined with energy storage ensure uninterrupted power supply, reducing the risks related to power blackouts.

AESTHETIC LOOK

BIPV solution is an innovative global trend. Building will not go unnoticed and will be sure to garner attention for its aesthetic design.

BIPV – A SUBSTANTIAL CONTRIBUTION TO EUROPEAN GREEN DEAL INITIATIVE

BIPV can support the objectives of a European Green Deal and accelerate the decarbonisation of EU's building stock.
BIPV contributes to achieving climate-neutrality objectives by 2050 and increasing the untapped building potential for clean electricity generation and local consumption.

VARIETY OF COLOURS

Hevel BIPV modules are available in a rich palette of colours, which opens the possibility for the most daring and creative ideas to be brought to life in original and innovative projects, while ensuring the reduced operating costs of the building.

MORE THAN
100
COLOUR OPTIONS

HEVEL

MORE THAN **100**
COLOUR OPTIONS

CHOOSE COLOURS USING THE CLASSIC RAL COLOUR SCHEME

APPLY ANY IMAGE AND TEXTURE

HEVEL BIPV SOLUTION DESIGN

Hevel BIPV solution consists of 3 main components:

- Facing — a photovoltaic module
- Facing cassette
- Rainscreen

FACING CASSETTE

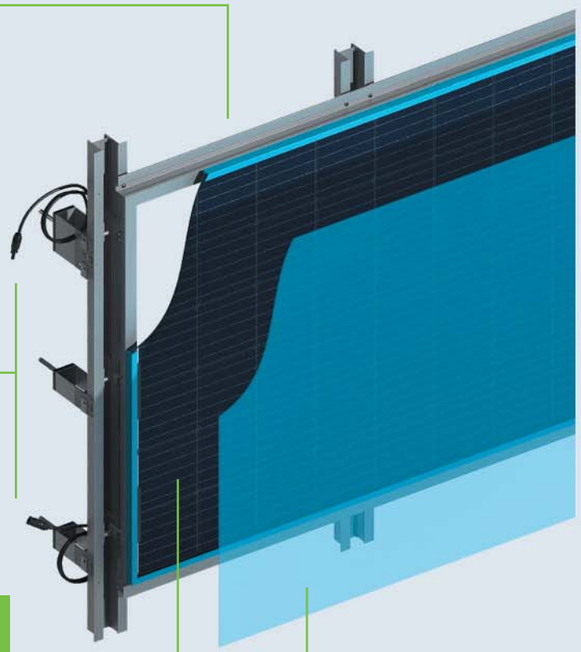
A frame with a cassette structure where the PV module is mounted. The cassette attaches to guide rails with hooks, adhesives and screws

MC4 CONNECTORS

For quick and easy connection of PV modules

NO EXTRA WIRES!

The sealed solar cable runs along the frame so that it is practically invisible from the back side



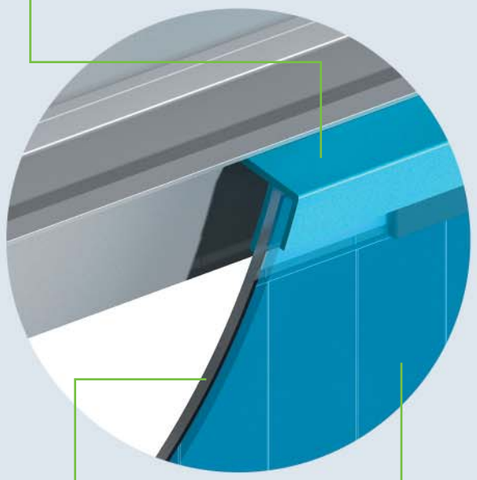
PV MODULE

The facing element of Hevel BIPV is based on a high performance HJT module.

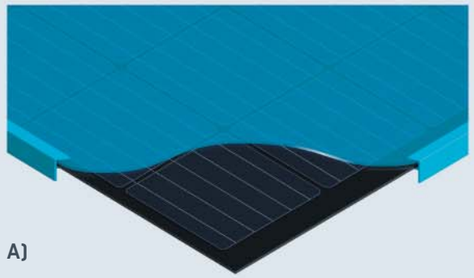
The PV module is a multi-layered structure consisting of a n-type monocrystalline solar cell that converts sunlight into electricity (direct current), laminated between two plates of tempered glass for strength and rigidity.

FRAME

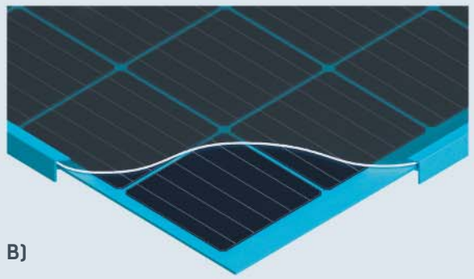
The frame is manufactured to match the colour of the glass for a visually universal facade



Depending on the colour of the front [A] and back side [B] glass, various design concepts can be implemented



A)



B)

HEVEL BIPV SOLUTION DESIGN

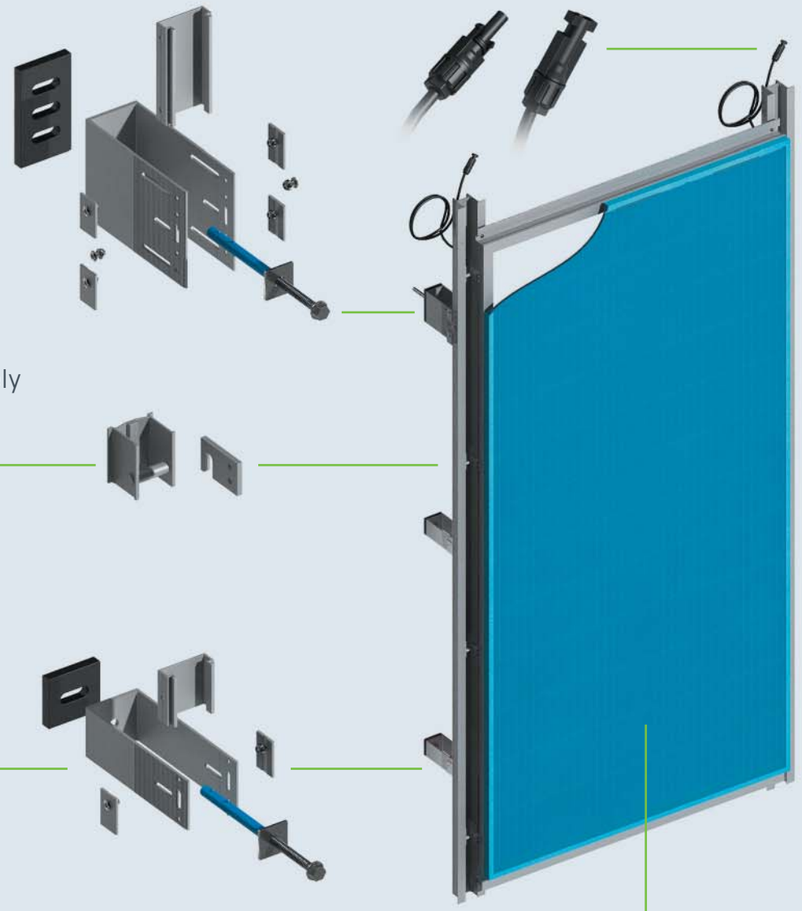
RAINSCREEN FACADE

Hevel BIPV solution uses a curtain system with aluminum profiles. The system is designed to hide fasteners for large cladding including PV materials, modules.

MOUNTING

The PV module is mounted in the frame of the facing cassette. When installing the PV module, a structural silicone-based sealant is applied to the facing cassette and stiffeners. The outer edges of the PV module are fastened with safety clamps, which provide an additional point of attachment of the PV module to the frame and prevent it from falling out of the facing cassette's frame in the event that the sealant melts in a fire.

The PV module is mounted to the facing cassette on the rainscreen's guide profiles using embedded fittings: hooks, brackets and assemblies from various modification systems.



BRACKET

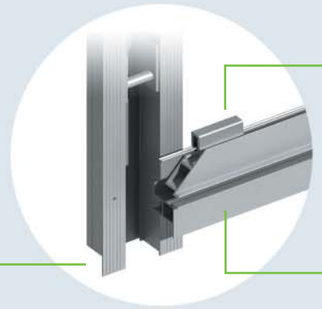
The bracket securely fastens the curtain system's frame to the building's supporting base

HJT PV MODULE

GUIDE PROFILES

Vertical, horizontal or hybrid, depending on project requirements

TOP PROFILE



HOOKS

For attaching facing cassettes to each other

BOTTOM PROFILE

The cassette profile, stiffeners, and clamps are made of aluminum alloy

ADVANTAGES OF ALUMINUM ALLOY:

- Light weight
- Temperature drops resistance
- High resistance to corrosion
- Durability
- Easy installation

HEVEL HJT PV MODULES ADVANTAGES

HIGH EFFICIENCY

based on high-efficiency HJT cell (eff. above 23.8%)

BETTER PERFORMANCE

due to the record-low temperature coefficient and absence of LID (light-induced degradation)

LOW TEMPERATURE COEFFICIENT

-0.28%/°C, unmatched by competing mass-market crystalline PV technologies

MINIMUM LIGHT DEGRADATION

degradation rate of -0.6%/year (-1.0% — in the first year)

Front side

Rear side

HIGH MOISTURE RESISTANCE

due to “glass-glass” design

TEMPERED GLASS

special tempered glass that ensures high product reliability is used in Hevel PV modules

ANTI-REFLECTIVE COATING

special anti-reflective glass coating ensures maximum energy efficiency, reducing the loss of solar energy to nearly zero

EXTENDED PRODUCT WARRANTY

official product warranty up to 15 years

PV MODULE OPTIONS

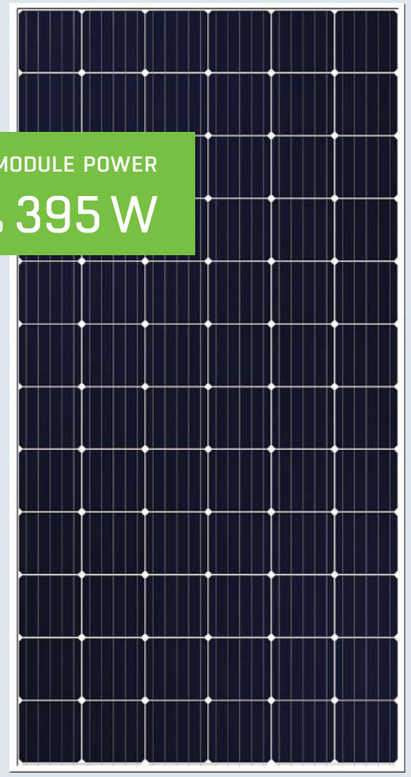
PV modules for BIPV solutions are available in a wide range of configurations. Depending on the colour of the front and back side glass, a variety of design solutions can be considered.

STANDARD SOLUTION

TYPE A

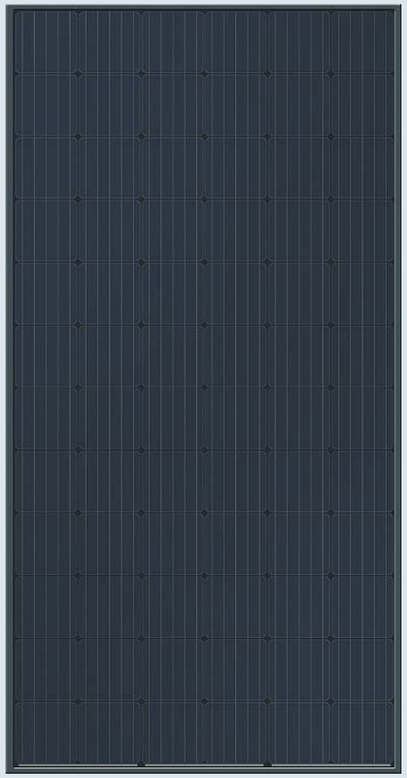
front side — transparent glass
back side — transparent glass

PV MODULE POWER
up to 395 W



TYPE B

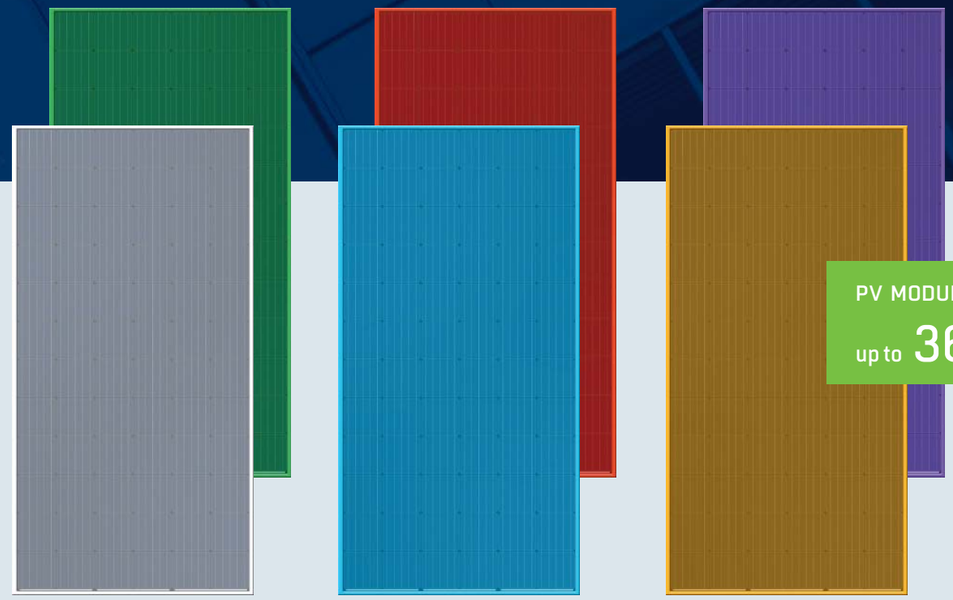
front side — transparent glass
back side — black glass



COLOUR VERSION

TYPE C

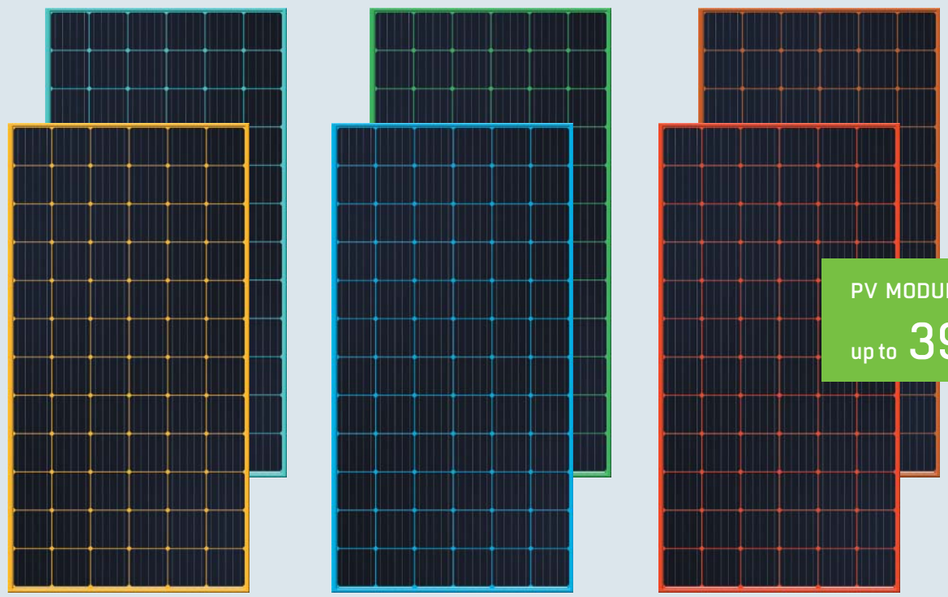
front side — coloured glass
back side — black glass



PV MODULE POWER
up to 360 W

TYPE D

front side — transparent glass
back side — coloured glass



PV MODULE POWER
up to 395 W

CERTIFICATION

Hevel BIPV module is certified for compliance with construction, sanitry, fire, environmental and other safety standards.

TECHNICAL SPECIFICATIONS OF BIPV

SPECIFICATION	VALUE
Overall dimensions of the facing cassette with the PV module	**2004** x **1048** x **46** mm
Weight	**40** kg
PV module performance warranty	**30** years
BIPV solution warranty	**50** years
Fire hazard class of PV module	**approved** for use in houses and any other building type
Fire hazard class of the BIPV system	**approved for** use in houses and any other building type
Climatic conditions for system operation	**from -45** to **+85 °C**
Module safety when operating in residential building	**+**
Wind loads on the system	All wind regions given positive wind pressure
150 m Maximum installation height of the facade system	regions I, II and III — up to 150 m high, IV — up to 110 m, V — up to 74 m, VI — up to 40 m, VII — up to 24 m

TESTING

Hevel BIPV has passed comprehensive testing in seven independent accredited laboratories. The results of every test were positive, allowing BIPV to be used in any type of building.

- Fire tests of a mounted BIPV
- Load capacity tests
- Tests to access the corrosion resistance and durability of the materials
- Frost resistance tests
- Fire hazard class tests
- Sanitary and epidemiological tests
- Electromagnetic radiation safety tests

ELECTRICAL CHARACTERISTICS UNDER STC*

The PV module's electrical characteristics are given for the standard version (type A, type B) of a standard module

SPECIFICATION	VALUE
Nominal power (Pmax)	**395 W**
Nominal power deviation (ΔPmax)	**0/+5 W**
Max power current (Impp)	**8.76 A**
Max power voltage (Vmpp)	**44.84 V**
Short circuit current (Isc)	**9.21 A**
Open circuit voltage (Voc)	**53.18 V**

PERFORMANCE CHARACTERISTICS

SPECIFICATION	VALUE
Maximum system voltage	**1500 V**
Operating temperature	**from -40 to +85 °C**
Nominal operating temperature	**38.8 °C**

* STC — standard test conditions: illumination — 1000 W/m², air mass — AM1.5, module temperature — 25 °C

HEVEL IS YOUR RELIABLE PARTNER

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