

safety
esthetic
free and clean energy
generation

Active Balustrade Systems



The E-Activ Balustrade system doesn't only provide safety, stunning architectural look and aesthetic pleasing design, but it also generates free and clean energy enough for your building.

Depending on the application and based on many variables as safety, aesthetic, light transmission, colour, energy performance, photovoltaic technology, integration system (fixing system, 1 or 3-sided fixation, ...) our team of engineers will work out a solution that meets your needs and expectations.

It is important, already in the early stage of the project, to pay attention to all details. The geographical data and building characteristics will be helpful in defining the mechanical properties of the glass while the details of the roof or façade may be useful to define the arrangement of the cells, define the electrical circuit as well as the position of the + & - outputs and how to pass the cables from one glass to another.

1. Glass specifications [regular and Bespoke]

The E-Activ balustrade system is a safety laminated glass composition with EVA and available in regular and bespoke dimensions

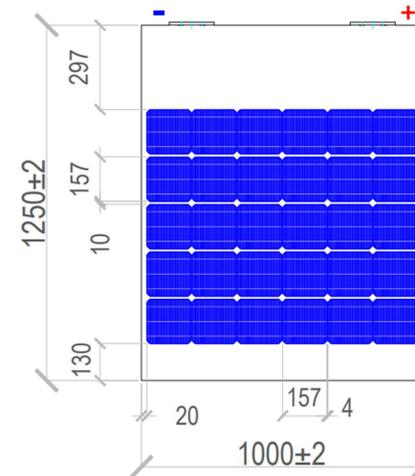
Regular size 1000 x 1250 mm

Build-up

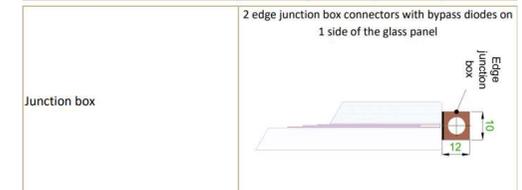
- 8 mm low iron toughened glass on the front side
- High efficiency BIFACIAL solar cells + EVA encapsulation
- 8 mm mid iron toughened glass on the back side
- Edge mounted junction box

Power output 150 or 180 Wp

Bifacial gain 10 to 20 % depending on the albedo



	8150	8180	Bespoke
Cell technology / dimensions	Bifacial Mono solar cells 158,75x158,75 mm		
no. of cells per glass module	30	36	(**)
Cell coverage	60%	73%	(**)
Glass build-up	88.4	88.4	max 1012.6
Thickness	18	18	max 24 mm
Height	1250	1250	(**)
Width (width between axis)	1000	1000	(**)
Area	1,25	1,25	
Weight	53	53	(**)



Electrical characteristics

Irradiance 1000W/m², module temperature 25°C, spectrum AM1.5

	Wp	154	184	(**)
Peak Power (Pmpp) ± 5%	Wp	124,00	148,00	(**)
Power density	W/m ²	154,00	184,00	(**)
Power per linear meter		9,91	9,91	(**)
Short circuit current (Isc)	A	19,73	23,67	(**)
Open circuit voltage (Voc)	V	9,45	9,45	(**)
Peak power current (Impp)	A	16,20	19,44	(**)
Peak power voltage (Vmpp)	V	1000	1000	(**)
Maximum system voltage	V			

Temperature coefficients

	%/°C	-0,39	-0,39	(**)
γ[Pmpp]	%/°C	-59,2	-71,0	(**)
β[Uoc] Voc	mV/°C	+5,94	+5,94	(**)
α[Isc]	mA/°C			

Temperature ratings

Module operating temperature range	-40 to +100 °C
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(*) thickness to be determined according to geographical location, local climatic conditions, wind and snow loads

(**) Depends on the design of the module

2. Design options

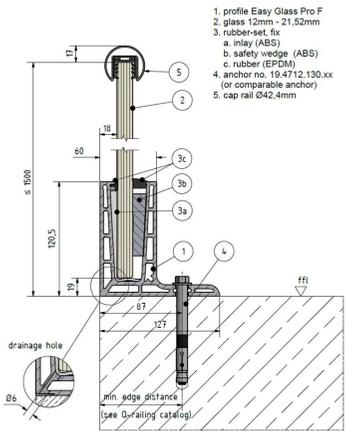
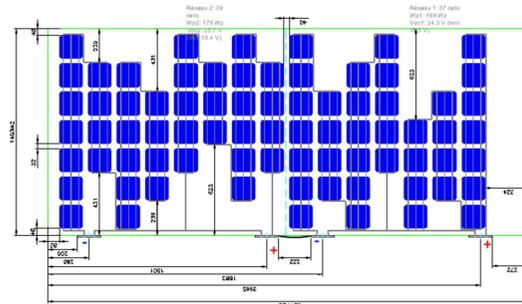
More design options with décor ceramic silk print or by random arrangement of the solar:

Décor ceramic silk print. High degree of customization to reach specific aesthetic and visual rendering with limited losses in efficiency.



Random or specific arrangement of the solar cells to create a pattern or an image.

VV15: 1 module



3. Support / Fixing system

Unique support system for structural glass balustrades by clamping at the bottom. No bolts, screw tightening, scaffolding or special tools required. That, together with the Safety Wedge glass-mounting solution, makes installation incredibly easy and cost-effective.

Laminated glass: min.88.2 / max.10.10.5 (22 mm)
 Top and vertical edges are free
 Cables between the glass panels inside the profile
 In accordance with NBN B03-004 Feb 2017
 CE certification : EN 1090

4. Wiring and commissioning

The E-Active balustrade system is supplied including the electrical installation up to the inverters. We therefore make an electrical study, supply system components up to the inverters, connect the glass units in series, complete the all wiring between the façade and the inverter room and arrange the commissioning of the DC-side of the system.

DC Wire sets

1x4² tailor-made double insulated single-pole wire sets assembled in the workshop with connectors on both ends for the connections between the glass panels



Inverters

Ideal inverter for small and large-scale commercial installations, delivering extraordinarily high yields with an efficiency of 98.4%. Highly flexible plant design.



5. System options and benefits

	Active Balustrade systems		
	Residential	Medium	Commercial
Safety	Fall and injury proof		
aesthetic	No wire or junction box are visible vertical and top edges are free		
Length (Qty)	8 m (8 units)	24 m (24 units)	80 m (80 units)
Overall Power output	1200 Wp	3600 Wp	12000 Wp
Estimated yearly energy production when facing the south	950 kWh	2900 kWh	9750 kWh
Price VAT and Taxes not included	12 860,00 EUR	30 050,00 EUR	90 890,00 EUR
PV surcharges	6 360 EUR	12 050,00 EUR	35 890,00 EUR
Pay-Back period	8 years	5 years	4 years

All systems include: PV glass panels, fixing system, inverters, installation and commissioning

6. Certifications and Guarantees

Our all product range is certified as a functional photovoltaic element according to IEC61215 and IEC61730 class II with a periodic factory inspection and complied with the following building standards:

EN 12543-4
 High temperature test,
 humidity test with condensation,
 UV radiation test

EN 12600
 Safety laminated glass,
 pendulum test,
 classification 1B1

EN 14449
 Evaluation
 of conformity
 laminated Safety Glass

EN 14179
 Thermally
 Toughened Safety
 Glass with
 Heat Soak Test

EN 12150
 Thermally
 Toughened
 Safety Glass

PHOTOVOLTAIC MODULE: The laminated glass units will neither significantly delaminate nor substantially change its color for a period of 10 years. The product and its performances are guaranteed for applications up to 100°C

PERFORMANCE GUARENTEE: 90% of the initial nominal power for a period of 10 years and 80 % of the initial nominal power for a period of 25 years

SYSTEM: E-Activ warrants a proper functioning of the photovoltaic system for a period not exceeding two (2) years from the date of commissioning

INVERTERS: 10 years

OTHER SYSTEM COMPONENTS: 5 years