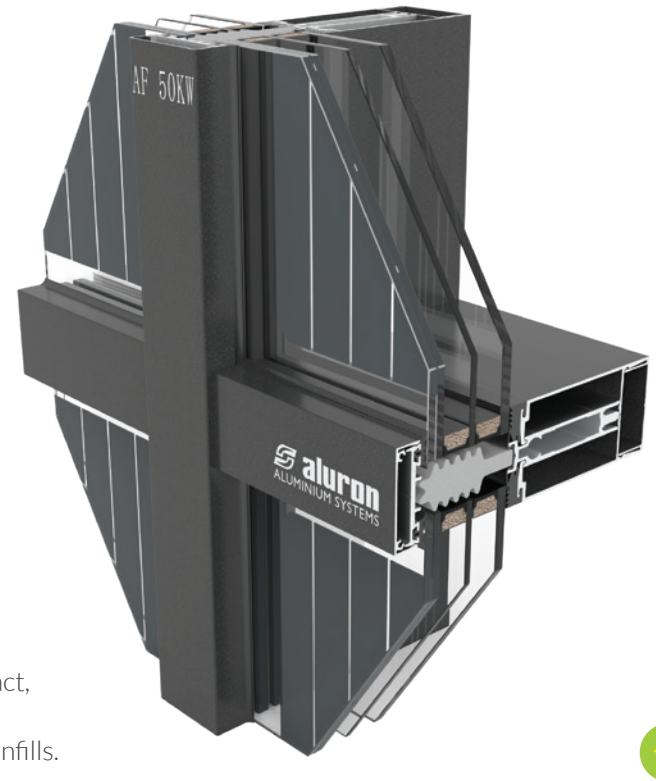
Zero-energy facade
AF 50KW QUANTUM

An innovative solution that was developed in response to investors' expectations during the energy crisis.

It is designed to make thermally insulated aluminium building facades using active photovoltaic infill. The appropriate design of the partition and the use of all system components make it possible to achieve a zero-energy structure, giving the possibility of fully balancing the gains and energy losses of the facade.



CE CERTIFIED

U section > 0.5 W/(m²K)

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Examples of AF 50KW QUANTUM infills:

- silicon cells: bifacial, mono-Si, poli -Si, BackContract,
- photoelectrochemical cells (DSSC),
- quantum dots (QDOT) ensuring transparency of infills.

ECO

SELECTED SYSTEM PARAMETERS

class AE 2400 Pa	class RE 2400 Pa	class RE 2400 Pa	class 2400 Pa	+/- 3600 Pa	class E5/I5	class 5 (950 mm/466 kJ)
Air permeability wall with and without window	Water tightness wall without window	Water tightness wall with window	Wind load resistance	Safety test	Impact resistance 2-chamber double-glazed window	Exposure category A

DESIGN & FUNCTIONALITY

Free arrangement of the photovoltaic cells: in a regular pattern or in different patterns.

Electricity production, reducing costs for air conditioning.

Glazing from the outside and inside.

INSIDE

Access to photovoltaic panels from the inside of the structure in case of failure.

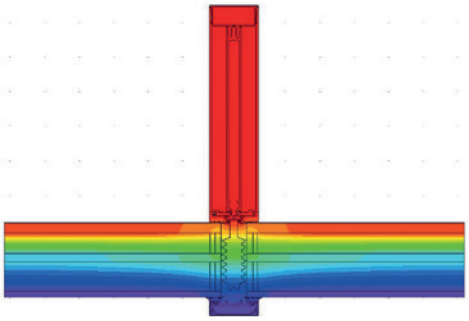
Profiles and gaskets flushed from the inside of the facade.

Ultra-thin chemically toughened glass just 0.85 mm thick encapsulating the cells.

Full optimisation of the profiles used thanks to mullion-to-mullion construction.

Installation cabling located inside the structure.

Proprietary Energy Management System to monitor energy yields and control technical condition of infill panels.

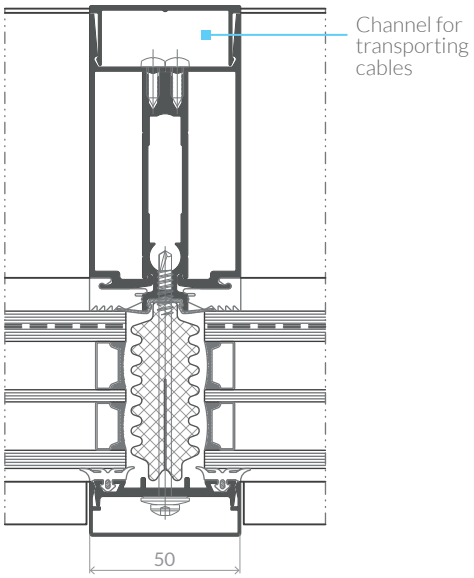


Temperature distribution

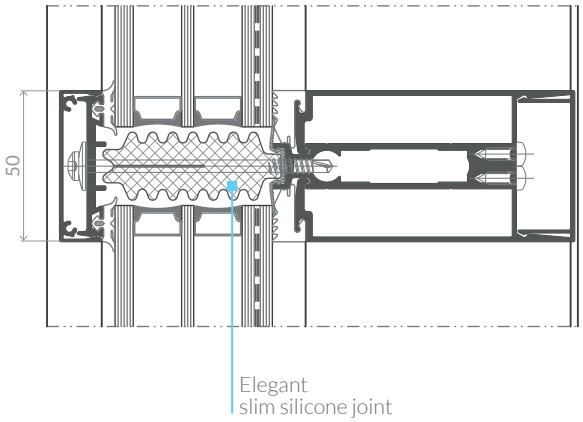
SYSTEM CHARACTERISTICS

from 0.5 W/m²K	180 W/m²	400 kg	67 mm	50 mm
Thermal insulation of active infill	Max. power rating of 1m² of infill	Max. infill weight	Max. infill thickness	Width of mullion and transom sections

Section through the mullion



Section through transom



European Funds Smart Growth

Republic of Poland

NCBR National Centre for Research and Development

European Union European Regional Development Fund

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