

Solar Thermal Venetian Blind

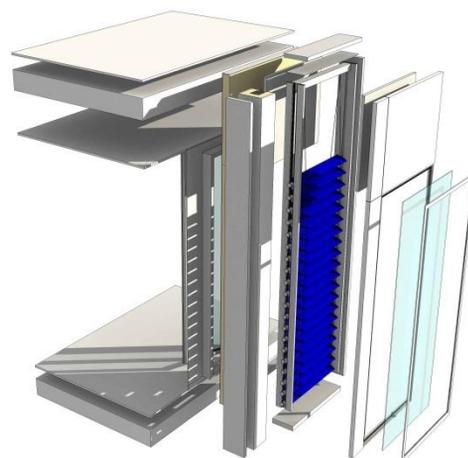
Energy efficiency and transparency

The solar thermal venetian blind enables the energetically optimal regulation of the energy flows through the façade. It combines solar control, useful solar gains and transparency in a unique manner.

The solar thermal venetian blind can be moved just like a regular venetian blind. At the same time it delivers heat and reduces solar gains to the building's interior. Blind slats with spectrally selective coating or conventional coating can be used. Heat pipes are employed to transport heat from the slats to the header tube on the side of the façade element. The use of heat pipes for the thermal coupling makes it technically possible to use movable lamellae for collecting solar energy in the first place. The switchable connection to the collection duct enables the user to tilt and retract the blind. In this way, the sun protection and heat gain functions can be controlled. If the connection is opened and the blind is retracted, the passive solar gains can reduce the heat demand of the building.



Visualization of a façade with a solar thermal venetian blinds.
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Schematic view of a solar thermal venetian blind with vertical collection duct. © Facade-Lab

If external blinds are not desired or possible, blinds are inserted between two glass panes. These blinds reach high temperatures, which increase the cooling demand of the building. By employing solar thermal venetian blinds this can be prevented as excess heat is transferred to the building services. Being multifunctional, only small additional costs in comparison to conventional façade elements are expected. The solar thermal venetian blind thus enlarges the design possibilities available for high quality architecture.

Advantages of Solar Thermal Venetian Blinds

- Collection of solar heat in transparent façade areas
- The amount of heat entering the building is reduced
- Aesthetically appealing and flexible

In the project "ArKol – Development of architecturally highly integrated solar façade collectors with heat pipes" Fraunhofer ISE together with partners is developing two innovative façade collectors from initial concepts through to first applications. Additional information can be found under <https://arkol.de/en>.

In collaboration with

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