

## HOW DOES THE Styroterm SYSTEM WORK?

Few people are aware of the fact that the use of external roller shutters significantly improves the heat transfer coefficient of the window  $U_w$ .

The external roller shutter guarantees additional thermal insulation, which means that it significantly reduces heat loss. This is because the lowered roller shutter curtain provides additional thermal resistance  $\Delta R$ , resulting from both the air layer between the curtain and the window and the curtain itself. This additional baffle effectively helps reduce the flow of warm air from and/or into the building. Thus, the higher the  $\Delta R$ , the lower the heat transfer coefficient.

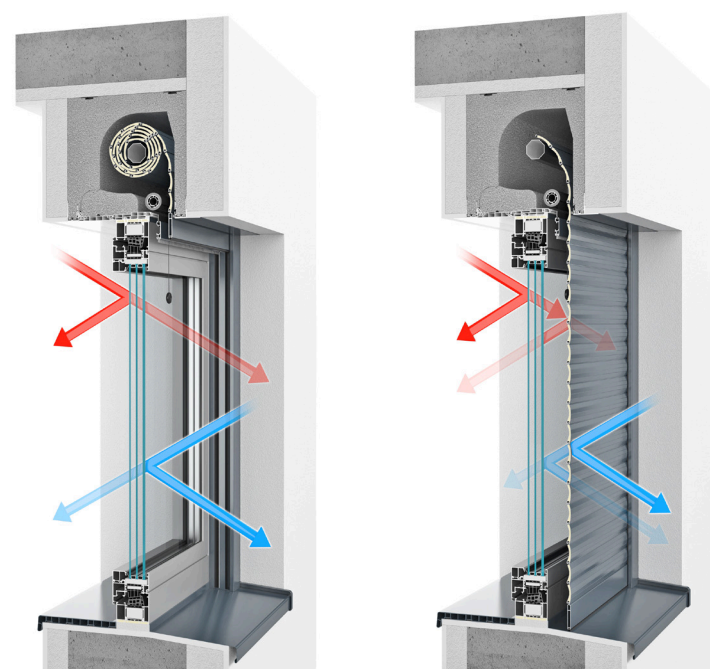
### JAK OBLICZYĆ WSPÓŁCZYNNIK PRZENIKANIA CIEPŁA DLA ZESTAWU OKNO Z ROLETĄ?

The heat transfer coefficient of a window with external blinds (roll-up shutters) closed,  $U_{ws}$ , is calculated based on EN ISO 10077:2017 "Thermal performance of windows, doors and shutters. Calculation of the thermal transmittance. Part 1: General provisions." It is enough to apply the formula indicated next to it, and the result will show us by how much the  $U_w$  coefficient has decreased due to the installation of an external roller shutter.

$$U_{ws} = \frac{1}{\frac{1}{U_w} + \Delta R}$$

### WHAT DO WE GAIN BY USING EXTERNAL ROLLER SHUTTERS IN THE SKB STYROTERM SYSTEM?

- For passive windows with  $U_w = 0.8$  [W/m<sup>2</sup>-K], the closed louvers of the Styroterm system improve the heat transfer coefficient of a window with a closed louver to  $U_{ws} = 0.67$  [W/m<sup>2</sup>-K],
- for windows with  $U_w = 1.1$  [W/m<sup>2</sup>-K] by 21%,
- for window frames with  $U_w = 1.4$  [W/m<sup>2</sup>-K] by 25% and for older windows even by more than 30%.

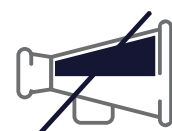


By using Styroterm external roller shutters, we can not only improve the energy balance of the building, but most importantly reduce heating and cooling expenses by up to 30% all year round.

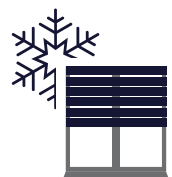
## WHAT DO YOU GAIN FROM external roller blinds?



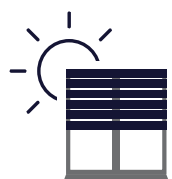
**SECURITY** - roller blinds can discourage a potential burglar. Thanks to this, we can feel safe in our home.



**ACOUSTIC INSULATION** - roller blinds help reduce the feeling of noise coming from outside.



**PERFECT THERMAL INSULATION** - roller blinds significantly reduce heat loss through windows and doors in winter.



**SUN SHIELD** - roller blinds perfectly protect rooms against overheating in summer.



**PRIVACY** - roller blinds protect the interior of our apartments from the eyes of unwanted people, so we can feel at ease.



**WINDOW PROTECTION** - roller blinds effectively protect the **woodwork**

window against harmful external factors such as: wind, rain or direct sunlight.



**SAVINGS** - roller blinds help to reduce heating costs in winter and air conditioning in summer.



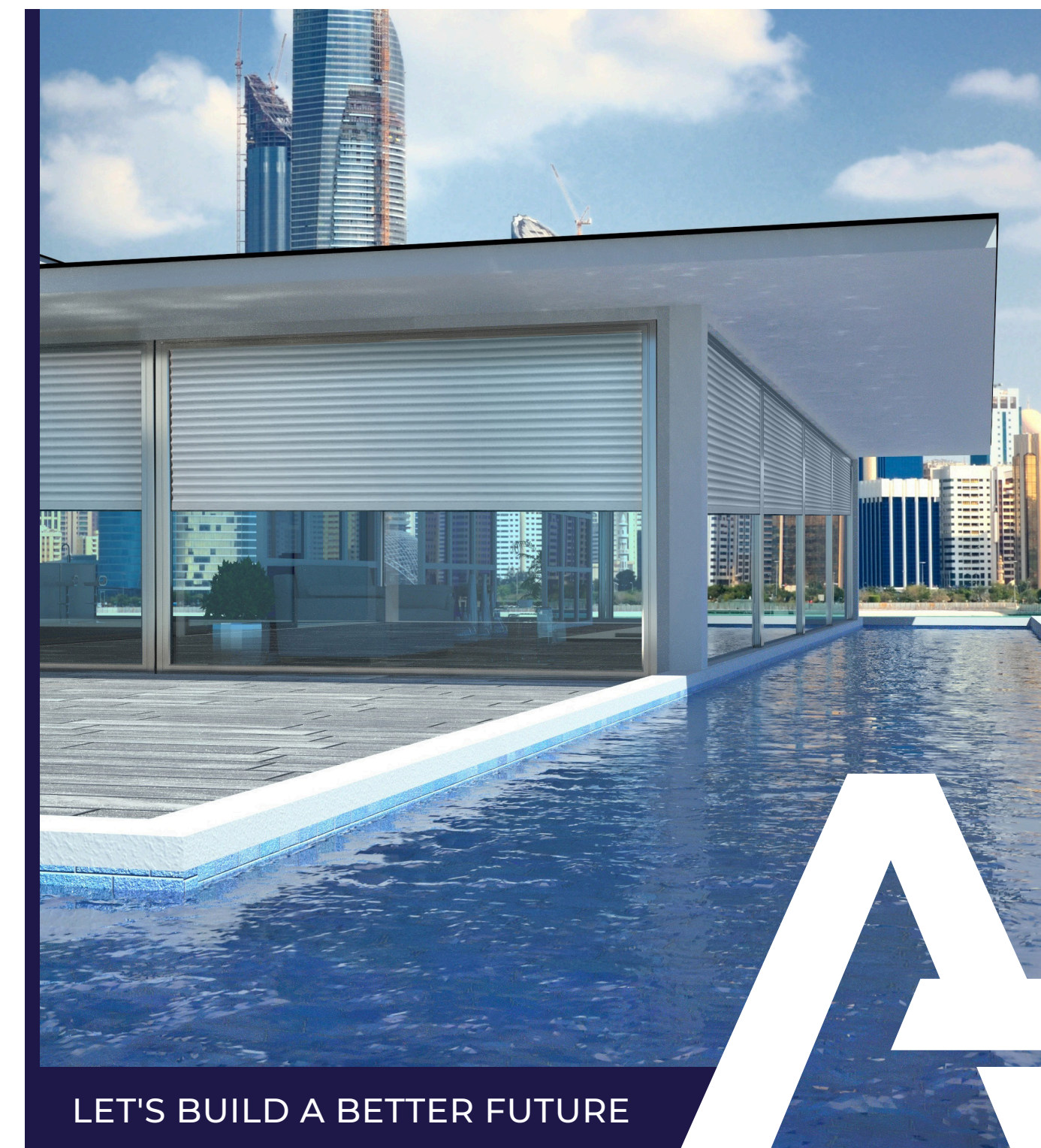
**PROTECTION AGAINST INSECTS** - thanks to integration with the mosquito net, roller blinds constitute a barrier that protects the interior of the house against the presence of annoying insects.

**ALUPROF**  
ALUMINIUM SYSTEMS

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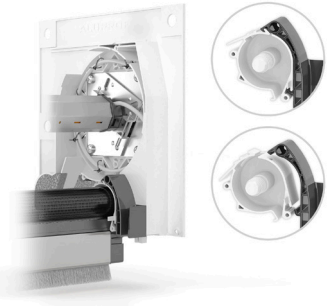


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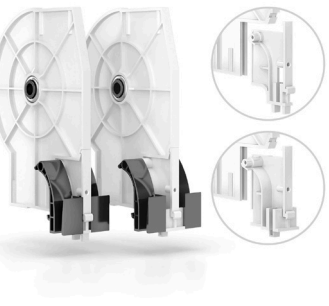


LET'S BUILD A BETTER FUTURE

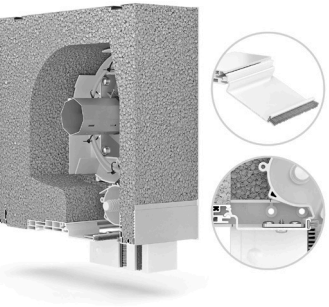
**MOUNTED ROLLER SHUTTERS SYSTEM**  
**SKB Styroterm**



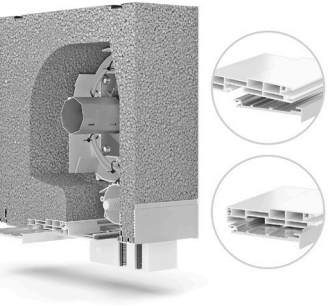
Very easy and quick installation of the mosquito net in the glider thanks to the use of click technology. This makes it possible to produce the box and MKT assemblies separately. The mosquito net can be installed at any stage of production after installing the gliders and properly winding the spring. Just click the sides of the MKT into the roller shutter gliders and the mosquito net is fully integrated with the roller shutter.



The use of a universal partition wall with replaceable glider adapters, adapted to the selected system variant, which allows for the optimization of warehouse stocks.



The commonly used inspection cover in the form of an angle bracket screwed to the window frame in the version with inspection from the outside has been replaced with a click-in aluminum profile, which ensures non-invasive installation. The aluminum profile is clicked directly into the lower profile of the box, which is made of PVC. This solution ensures appropriate stiffness of the revision and, moreover, allows color matching to the joinery or façade, as the profile can be painted in any color from the RAL palette.



Assembly of the box is very quick and simple. It involves directly mounting the box on the window frame using an appropriately selected adaptive profile by sliding or clicking. The installation method is identical to that of the SKT Opoterm system and allows for significant time savings.



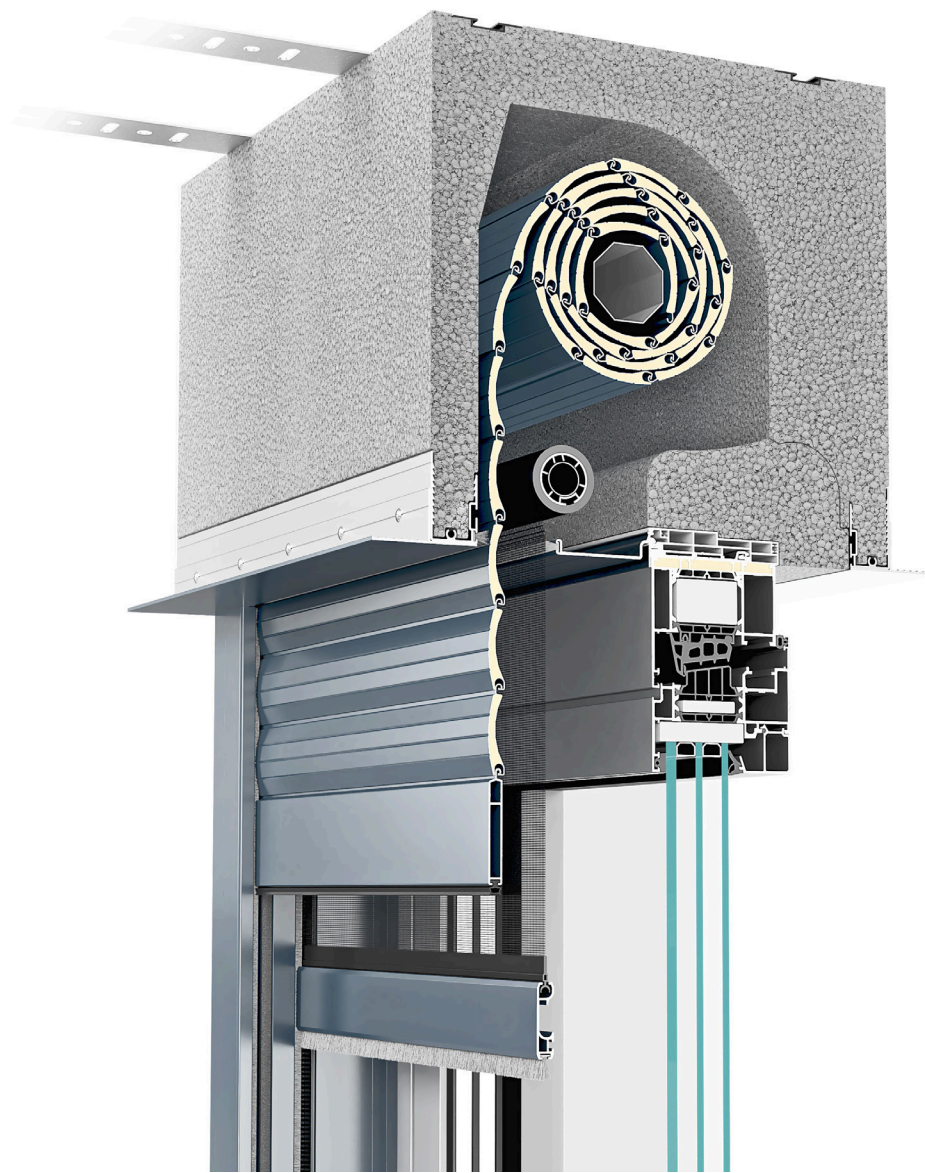
The well-thought-out design of the system allows the use of a facade blind mechanism in the box. Installing the rail is very quick and simple. Thanks to this, you can aesthetically combine external roller blinds and façade blinds on the same façade.

## EXPLORE THE INNOVATIVE Styroterm SYSTEM

SKB STYROTERM is a highly technically advanced solution for top-mounted roller shutters, which was created primarily to improve the energy balance of the building. The main element of this system is the box, which is made of high-quality material with very good thermal properties and is available in two sizes. Research at the renowned research institute IFT ROSENHEIM has shown that the proposed solution is characterized by an extremely low coefficient of thermal transmittance  $U_{sb}$  from  $0.29 \text{ W/m}^2\cdot\text{K}$ , which puts this system in first place among other products of this type.

The advantage of this solution is also the ability to choose the method of inspection from the inside or outside. In addition, the STYROTERM system is also available in a version adapted to install a set of facade blinds.

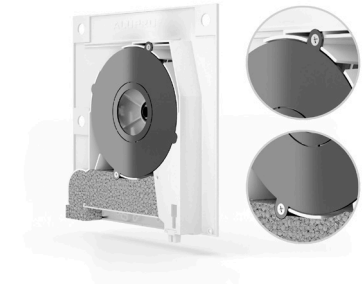
Roller shutters in the STYROTERM system can be equipped with a mosquito net built into the box. Its installation thanks to the "click" technology is very quick and easy.



Nachweis		ift	
Berechnung des Wärmeübergangskoeffizienten und Temperaturfaktors		ROSENHEIM	
Prüfobjekt: SKB Styroterm Nr. 19 200318-PS01 (PS-01-00-001)		Auftraggeber: ALUPROF S.A. Central, Zakład Białka Białe ul. Wesołowska 152 43-300 Białka-Biała 43-300	
Auftragsnr.: 19 200318-PS01 (PS-01-00-001)		Auftraggeber: ift Rosenheim Industriestraße 10 83054 Rosenheim 83054	
Produkt: Rollshutterboxen		Auftraggeber: ift Rosenheim Industriestraße 10 83054 Rosenheim 83054	
Berechnung des Wärmeübergangskoeffizienten gem. EN ISO 10275:2015:07 (Prüfung-Vorgehen) $U_{sb} = 0,29 \text{ W/(m}^2\text{K)}$ bis $0,48 \text{ W/(m}^2\text{K)}$ Berechnung des Temperaturfaktors gem. EN ISO 1578:2015:12 / EN ISO 10275:2015:07 (Prüfung-Vorgehen) $f_{sb} = 0,74$ bis $0,78$ Die Berechnung des Temperaturfaktors $f_{sb}$ wurde mit einer absteigenden Temperatur von 45 und einem konstanten Temperaturunterschied von 10 K durchgeführt.		Berechnung des Wärmeübergangskoeffizienten gem. EN ISO 10275:2015:07 (Prüfung-Vorgehen) Die Berechnung des Wärmeübergangskoeffizienten $U_{sb}$ wurde mit einer absteigenden Temperatur von 45 und einem konstanten Temperaturunterschied von 10 K durchgeführt. Die Berechnung des Temperaturfaktors $f_{sb}$ wurde mit einer absteigenden Temperatur von 45 und einem konstanten Temperaturunterschied von 10 K durchgeführt. Die Berechnung des Temperaturfaktors $f_{sb}$ wurde mit einer absteigenden Temperatur von 45 und einem konstanten Temperaturunterschied von 10 K durchgeführt. Die Berechnung des Temperaturfaktors $f_{sb}$ wurde mit einer absteigenden Temperatur von 45 und einem konstanten Temperaturunterschied von 10 K durchgeführt.	
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A universal guide foot is available, which can be used regardless of the selected variant of the revision system. You only need to rotate it a certain way when installing it in the side cover of the box. This allows for significant optimization of inventory levels.



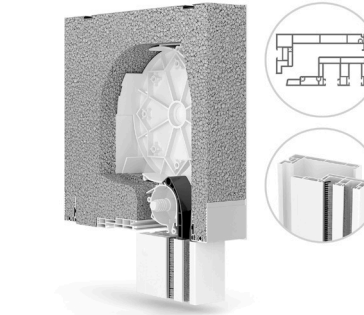
The possibility of using cover plates has been introduced, which prevent the armor from getting caught on the side of the box. These plates are made of PVC material and mounted on the side of the box using screws.



The well-thought-out design of the system allows for the power cable to be routed within the box. Just remove the specially prepared space in the side of the box and insert the electric drive cable, which can then be freely connected to the power supply.



It is possible to replace the glider without having to dismantle the entire roller blind. It is inserted into the side cover using a "T" locking principle and then screwed to it using a screw, which stabilizes the connection of all elements. The socket in which the screw is attached has been aesthetically masked.



For the option of inspection from the outside, new two-piece guides have been designed that can be partially hidden in the insulation. They are available in maxi and mini versions, and their use depends on the size of the profiles used to build the roller shutter curtain.