

## Case study.

### **Eye-catching water sports centre in Kaunas, Lithuania**

**A complex roof structure, connected reliably while saving energy using Schöck Isokorb® thermal breaks**

**Attention is drawn to the exceptional exterior architectural design and the indoor Olympic-sized swimming pool with a grandstand that can accommodate about 700 spectators, a smaller pool for children's swimming lessons, as well as a wellness area and a sports club: the first water sports centre of its kind in the Baltic States built on the Nemunas Island in Kaunas. The building and its entire infrastructure are located near the Žalgirio Arena and meet the requirements of the International Swimming Federation FINA. Thermal separation of the cantilevered roof is ensured by Schöck Isokorb. This product contributes significantly to the energy efficiency of the building.**

The multifunctional water sports centre with a total area of 18,400 square metres blends harmoniously into the landscape. When designing it, the architects of E. Miliūno studija used the relief of the area, which now smoothly transitions into the one-story building in the form of a green roof. The building is also exceptional in terms of energy – from the point of view of climate protection, it corresponds to the A+ energy class. “We have no doubt that the new water sports centre will become a strong centre of attraction for the entire country,” said Vigimantas Abramavičius, head of the Construction Management Department of the Kaunas Municipality, assessing the impressive result.

### **Reduction of thermal bridges in a complex roof structure**

From a structural engineering point of view, the project was a real challenge due to its unusual roof structure. Due to the length of the cantilever of more than five metres, it was necessary to ensure that very high loads could be carried, so special 380–580 millimetres high elements were required for the roof connection, whereas usually they are only up to 250 millimetres high. Just seeing the planned geometry made it clear that standard solutions will not work in this case.

### **Highest level thermal insulation with Schöck Isokorb**

Schöck Isokorb T type K became a reliable solution. The structural thermal break for cantilevered balconies minimises thermal bridges at connections and transmits negative moments and positive shear forces. Even the elements used in non-standard structures are designed to comply with the European ETA certificate. In order for the roof of the water sports centre to be reliably connected to the cantilevered roof construction and meet the designers' tasks, the Schöck Isokorb was adapted to the specific requirements with the active support of the Schöck customer service department, while the non-standard elements were designed based on many years of experience.

### **Individual solution for each requirement**

Audrius Ražaitis, manager of Ribinis būvis UAB, has experience with Schöck Isokorb® products accumulated since 1994, and shares his thoughts: "It was clear from the beginning that in order to connect this architecturally extremely complex roof structure in a reliable, stable and energy-efficient manner, we would not be able to use any standard products. We chose Schöck Isokorb because the manufacturer has many years of experience in the design of non-standard products. Schöck designed and manufactured Isokorb elements of the required structure according to the individual commission, basing their suitability on detailed calculations. Cooperation with Schöck went smoothly and I definitely recommend both the manufacturer and the product to others."

### **Construction information stand**

**Client:** Kaunas City Municipality

**Contractor:** Conresta UAB, Vilnius, Lithuania

**Architecture/design:** E. Miliūno studija, Kaunas, Lithuania

### **Project information**

Žalgirio Arena water sports centre, Karaliaus Mindaugo pr. 50, Centre, Kaunas

**Construction period:** September 2020 – May 2022

**Area:** 18,400 m<sup>2</sup>

**Energy class:** A+

**Investment:** 27.5 million euros

### **Photographs**

[Schoeck-INT\_Wassersportzentrum-Kaunas-Litauen\_1]



*"Žalgirio" on Nemunas Island in Kaunas is the first water sports centre of its kind in the Baltic States.*

*Photo: Laimonas Ciūnys*

[Schoeck-INT\_Wassersportzentrum-Kaunas-Litauen\_2]



*The architects of E. Miliūno studija used the relief of the terrain for the design, which now flows smoothly into the single-story building in the form of a green roof.*

*Photo: Laimonas Ciūnys*

### [Schoeck-INT\_Wassersportzentrum-Kaunas-Litauen\_3]



*Energetically, the building scores with the energy efficiency house class A+. Photo: Laimonas Ciūnys*

### [Schoeck-INT\_Wassersportzentrum-Kaunas-Litauen\_4]



*Roof design challenge: Schöck Isokorb ensures thermal separation of the cantilevered roof, Photo: Laimonas Ciūnys*

### [Schoeck-INT\_Wassersportzentrum-Kaunas-Litauen\_5]



*Schöck Isokorb T type S is a load-bearing thermal insulation element for the connection of cantilevered steel components.*

*Foto: Schöck Bauteile GmbH*

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