SMART COOLING

# CASE STUDY

## Ice halls - Arena

**Riga, Latvia**

“

The intelligent adiabatic **Smart Cooling™** system reduced electricity consumption by **21%** and boosted cooling capacity by **23%** on average at ICE Arena, Riga.”


## SOLUTION

The intelligent adiabatic **Smart Cooling™** system was installed to deliver cooler air to the condenser, enabling the cooling equipment to operate in a lower outdoor-temperature mode. By reducing incoming air temperatures by **10–15°C**, **Smart Cooling™** helps the system produce more cooling capacity while using less electricity. Both chillers on the ICE Arena roof were equipped with **Smart Cooling’s™** customized adiabatic panels. These panels not only improved operating temperatures but also protected the condensers from direct sunlight, extending their service life and reducing the need for repairs and maintenance.

## RESULTS

Testing was conducted in September 2016. After the installation of the **Smart Cooling™** system, the cooling equipment produced noticeably more cooling capacity: **23%** on average. Electricity consumption dropped to around **21%** on average.

The return on investment (ROI) period of the **Smart Cooling™** system for this project is of only 9 months.

Additionally, cooling equipment operates under
the circumstances of normal load, the operating
cycle of compressors is shorter and the equipment does not become overloaded.

**CHECKED AND TESTED FOR PROVEN RESULTS**

Efficacy assessment has been conducted and validated. Testing was performed with BTU liquid flow and temperature meter RIF600 and Eniscope energy monitoring equipment.

## CUSTOMER

ICE Arena was constructed in 2006 with a total area of 22,568 square meters and holds 14,500 spectators. To maintain a healthy icing system and lower costs, cooling efficiency at the arena is crucial.

ICE Arena’s cooling equipment consists of a York chiller and an Alfa Laval dry-cooler, generating a total cooling capacity of Q=556kw. The equipment ensures the quality of both the ice and indoor climate.

## CHALLENGE

During heat season, when outdoor air temperatures can reach +27°C, cooling facilities operate in peak mode. With a continuous working cycle, the facilities were constantly overloading and failing to ensure the required cooling capacity. Electricity consumption increased considerably and, consequently, so did costs.

Boosting efficiency and capacity of ICE Arena’s cooling equipment was imperative.

COOLING CAPACITY INCREASED BY ↑23%

ELECTRIC ENERGY CONSUMPTION REDUCED BY ↓21%

**ROI 9 MONTHS**