Case story
Helsinki, Finland

Collaborative innovation cuts heat exchanger carbon footprint by 60 percent for hospital in Helsinki

When Laakso Joint Hospital in Helsinki set out to integrate the cooling system in the new hospital area, finding an efficient solution for heat transfer was key to secure long-term energy savings. Little did they know that they would be installing heat exchangers with a record-low product carbon footprint.

The Laakso Joint Hospital area in Helsinki when project completed in 2030
Rendering: Architect group Laakson Latu

The urgent need to cut fossil carbon emissions is evident everywhere. It's no longer just a goal but a critical necessity, requiring companies to invest in and implement cutting-edge technologies to accelerate progress toward net zero. It's about turning net zero commitments into immediate action.

A big challenge for companies today is reducing climate impact not only in their own operations but also upstream and downstream in their value chains. While individual actions to reduce emissions might seem small, cross-industry collaboration and innovative solutions can lead to substantial impacts. In Helsinki, Finland, we are witnessing such an impact. Thanks to collaboration across the value chain, heat exchangers will not only deliver energy-efficient cooling for a hospital but also feature a record-low product carbon footprint of Alfa Laval's gasketed plate heat exchangers, achieving up to a 60 percent* reduction in carbon emissions on the delivered units. This success story demonstrates how joint sustainability ambitions from steel suppliers to the end-customer can significantly reduce carbon emissions throughout the value chain.

*) Based on global average emission factors for stainless steel and carbon steel according to Ecoinvent LCI database compared with the specific claims on Outokumpu Circle Green® and SSAB Zero™. According to ISO 14067, considering cradle-to-grave.

Efficient cooling for Laakso Joint Hospital

Cities consume more than two-thirds of the world's energy and play a crucial role in tackling the climate crisis. Heating and cooling, essential for all individuals, are among a city's largest energy expenses. Most energy used for heating and cooling today is produced from fossil fuels, so this sector requires urgent action. Creating an impact not only in the actual operation of heating and cooling but also upstream in the value chain will have a greater effect.

When Laakso Joint Hospital in Helsinki were setting up the cooling system in the new hospital area, they needed to find an efficient heat transfer solution to save energy long-term. During 2025, they ended up installing heat exchangers with a record-low carbon footprint. This achievement was made possible by the collaboration of key players in the hospital's value chain, using low-emission steel materials from SSAB and Outokumpu in the gasketed plate heat exchangers from Alfa Laval.

"Sustainability has played an important role in the Laakso Joint Hospital project with ambitious life-cycle goals that have been taken into account at every phase of the project. Sharing this deeper understanding with key suppliers and being able to install solutions that not only provide efficient cooling for the hospital but that also have a lower carbon footprint is a great contribution to our mission."

Antti Hyökki
Property Manager at the Real Estate Limited Company Laakso Joint Hospital

Net zero ambitions, collaboration and action: key drivers behind the success

Within the Concept Zero™ initiative at Alfa Laval, we are turning our net zero commitments into actions to reduce emissions from its heat exchanger's entire value chain. The equipment in Laakso Joint Hospital is the first of its kind, reducing emissions by up to 60 percent on the unit itself compared to average material alternatives on the market. This achievement was made possible through collaboration with like-minded partners, SSAB and Outokumpu.

Alfa Laval, a world-leading manufacturer of heat transfer technology, along with the world-leading steel manufacturers SSAB and Outokumpu, all have net zero targets according to Science Based Target initiative. We share the mindset that sustainability is not about compliance but about leading the industry towards a more sustainable future. Through joint ambitions and cross-border collaboration, we delivered these first-of-its-kind heat exchangers to the end-customer in Finland for efficient cooling of the hospital area.

From steel to energy efficient heat transfer
The steel industry, both carbon and stainless, accounts for about 10 percent of global greenhouse gas emissions (IEA 2023). By 2050, emissions need to be cut by 90 percent compared to 2022 levels to reach the global sustainability targets. (ResponsibleSteel 2024)

With gasketed plate heat exchangers consisting to a large part of carbon steel and stainless steel, reducing the carbon footprint of these units is crucial. Combining SSAB's SSAB Zero™ steel and Outokumpu Circle Green® stainless steel in the manufacturing of Alfa Laval's gasketed plate heat exchangers allow for significant emission cuts in the main components of the units. By using these low-emission materials, the carbon footprint of the heat exchanger units is significantly reduced – up to 60 percent in the units specifically designed for the hospital in Helsinki.

"The demand for green steel is expected to surge significantly within the next years. Low-emission solutions, from renewable energy, hydrogen, and sustainable urbanization, all depend on stainless steel.

Decarbonization is not just a goal anymore – it's a necessity, requiring companies to invest and implement energy-efficient and low-emission technologies, such as heat exchangers, to accelerate the green transition. And there we need Nordic likeminded frontrunners to drive the progress."

Rolf Schencking
President for Business Line Advanced Materials at Outokumpu

"This is one more great step towards a more sustainable future. We are proud to work with companies like Alfa Laval and Outokumpu, since our goal is to build a fossil-free value chain together with our partners and customers.

SSAB Zero™ is made using recycled steel. By using fossil-free energy during the production, the fossil carbon emissions are virtually zero."

Tony Harris
Head of SSAB Europe

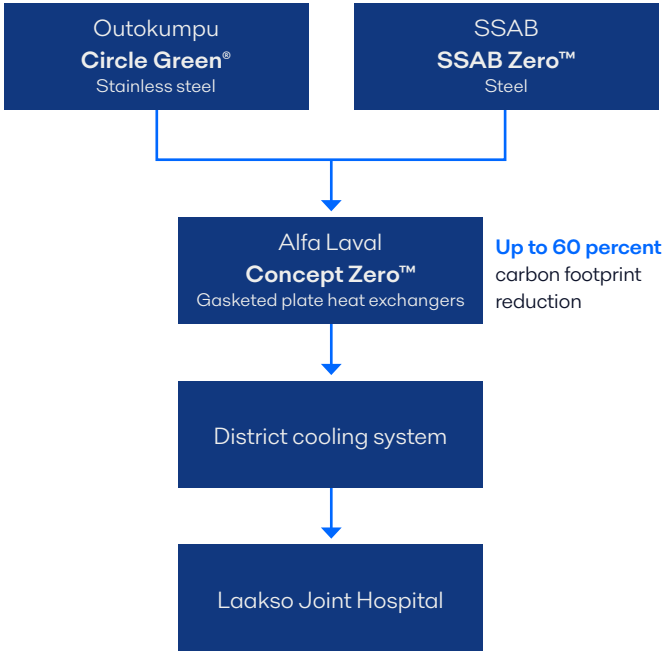
The Alfa Laval gasketed plate heat exchangers are designed and manufactured for optimal performance and energy efficiency. With support from several stakeholders including the Alfa Laval business partner Gebwell, the design, delivery, and installation of five Alfa Laval TL10 gasketed plate heat exchangers were secured for the hospital in Helsinki. Optimally designed for the specific process these units will deliver outstanding cooling performance. With regular service, they will ensure energy savings year after year. Additionally, the units themselves carry a record-low carbon footprint.

"Our heat exchangers already help cut our customers' emissions during operation and now, by using low-emission steel, we're also reducing emissions in their upstream value chain.

This collaboration serves as a model for how local initiatives can have a global impact, pushing the boundaries and scaling up the usage of low-emission materials."

Julien Gennetier
VIce President Energy Division, Alfa Laval

Setting a new benchmark for sustainable solutions
One of the most compelling aspects of this collaboration between Alfa Laval, Outokumpu, SSAB and Laakso Joint Hospital is its demonstration of how sustainable solutions can be implemented today. By combining commitments and innovations, companies can significantly reduce their climate impact, both in their operations and throughout the value chains. The success in Helsinki serves as a model for how local initiatives can have a global impact, paving the way for a more sustainable and energy-efficient future.



The value chain simplified

About Alfa Laval Concept Zero™

Concept Zero™ is Alfa Laval's initiative to turn net zero commitments into tangible actions across the entire heat exchanger value chain. Our goal is to cut scope 3 emissions by 50 percent by 2030, from sourcing materials to design, manufacturing, and end-of-life. On top of this, we aim to produce the world's first gasketed plate heat exchanger with zero fossil carbon emissions by 2030, paving the way to net zero by 2050. Collaboration with partners, suppliers, and customers is at the heart of Concept Zero™ and the key to a sustainable future.
Read more: www.alfalaval.com/concept-zero

About Outokumpu Circle Green®

Outokumpu Circle Green® is the world's first towards zero stainless steel. We've reached a reduction of up to 93% compared to the industry average without compromising the superior stainless steel product features. To produce Circle Green and to reach up to 93% lower carbon footprint, we use: 100% low-carbon electricity, low-carbon raw materials, such as recycled steel (even up to 100%), and optimized production processes. Circle Green was the first innovation of its kind on a global scale with such a low carbon footprint and with a product-specific footprint calculation for every delivery. Today, more than 40 leading companies from various industry sectors in Europe and Asia are using this solution to reduce their carbon footprint.
Read more: www.outokumpu.com/en/products/circle-green

About SSAB Zero™

SSAB Zero™ is made using recycled steel as raw material, and by using fossil-free electricity, biocoal and biofuels as energy sources. The result is a steel made with virtually zero fossil carbon emissions in SSAB's production process. In fact, the fossil carbon emissions in SSAB's production of SSAB Zero™ are less than 0.05 kg CO_2e/kg steel in Scope 1 and 2 of the GHG Protocol. This makes it the first commercially available steel of its kind, launched in March 2023. SSAB Zero™ has the same high quality, properties and performance in the end-product, as traditional steel. It has no added emissions, no mass balancing, no carbon emissions offsetting and is third party verified.
Read more: www.ssab.com/fossil-free-steel/ssab-zero

About Laakso Joint Hospital

The Laakso Joint Hospital is a construction project. The City of Helsinki and Helsinki University Hospital (HUS) will reform the Laakso Hospital area in Finland between 2022 and 2030. The project will be implemented by the Laakso Joint Hospital Alliance. We are building functioning facilities for the treatment of psychiatric and somatic diseases in Laakso Hospital area in Helsinki and Ohkola area in Mäntsälä, Finland. Ambitious life cycle goals guide both the planning and implementation of the project. Both the construction work and the finished hospital buildings and their maintenance must be energy-efficient, sustainable in their life cycle, consider nature values, and use resources wisely.
Read more: laaksonyhteissairaala.fi/en

Contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com

100021462-1-EN 2503