

Case story  
Rönnskär, Sweden

# Great savings in copper smelting plant through long-term service partnership

## Predictive maintenance for plate heat exchangers

The Boliden-owned Rönnskär smelter in Skelleftehamn on the Baltic Sea is one of the world's most efficient copper producers. A service agreement with Alfa Laval, signed in 2006 for all plate heat exchangers (PHEs), has greatly impacted cooling processes, resulting in significant water and energy savings.



Every day, tonnes of brackish water from the Baltic Sea are pumped into hundreds of PHEs working to cool the smelting processes at Rönnskär. Ensuring the PHEs' optimal performance leads to enormous savings in energy and water consumption. This is precisely why the service agreement with Alfa Laval was established all those years ago. Today, eighteen years into the partnership, the results speak for themselves.

"Planned maintenance has led to fewer breakdowns and a substantial increase in uptime", says Lars Nilsson, Sales Engineer at Alfa Laval Nordic. "But most importantly, water consumption has been almost halved, from 110 million tonnes of water per year to 60 million tonnes. This has also lowered the energy costs for water pumping by 15–20% since 2006."

#### Reactive vs. proactive

"I would estimate that 80% of the market has a reactive approach to maintenance", says Lars Nilsson. "This means that they only service their PHEs when faced with breakdowns."

#### 50 plus years with Alfa Laval

"For as long as I can remember, Alfa Laval has been a key business partner at Rönnskär", says Anders Wikström, Production Engineer at the Energy Department at Boliden. "Our shared history goes all the way back to the '60s, and the vast majority of Rönnskär's PHEs come from Alfa Laval. So, formalizing our partnership with a service agreement was a natural step. Since the start in 2006, it has been renewed every three years."

#### Servicing all PHE brands

At Rönnskär, there are PHEs of different ages, sizes, and brands. Some have well-documented service histories, while others have no service records. Alfa Laval is continuously building a service history database covering all PHEs currently in operation, regardless of whether they are their own or another brand.



"Not only does this cause costly downtime, but it also results in sub-optimal operations and higher running costs. Rönnskär's proactive approach and the service agreement with Alfa Laval are proof of the immense savings that can be achieved."

Lars Nilsson  
Sales Engineer  
Alfa Laval Nordic

#### Win-win partnership

No matter the challenge, Boliden knows they can count on their collaboration with Alfa Laval to optimize PHE operations, today and in the future. "We have a solid business relationship", says Wikström. "Plus, we learn from each other all the time" he concludes.

#### Benefits

- Reduced water consumption
- Lower energy costs
- Improved environmental performance
- Higher productivity due to increased uptime
- Longer PHE lifespan

## Four points for optimal performance

Since the first service agreement, Rönnskär has relied on Alfa Laval for improvements in PHE performance by taking advantage of the following service agreements:

### 1. Performance assessment

This service provides insight into the actual operating conditions. Alfa Laval measures heat transfer values and can predict exactly when maintenance is required.

### 2. Cleaning-in-place

Alfa Laval cleans Rönnskär's PHEs based on the results of the Performance assessments. Using the right concentration of approved cleaning agents at the right temperature ensures top PHE operation. The cleaning process addresses the most common forms of fouling, as well as marine fouling from the cooling seawater.

### 3. Reconditioning

"Alfa Laval also excels here", according to Wikström. "They swiftly replace gaskets and other parts to restore optimal function."

### 4. Performance- and Visual condition assessment

Alfa Laval provides assessment and advisory services to optimize PHE performance. "Alfa Laval quickly identified several PHEs at Rönnskär that were oversized or undersized for their specific duty and has since redesigned them to improve operations," says Wikström. "Oversizing or undersizing PHEs directly affects water flow. Too low a flow negatively impacts cooling efficiency. Too high a flow increases pumping costs unnecessarily."

## Heating for all of Skellefteå

For more than 30 years, the Rönnskär plant has supplied district heating in the region, including the municipality of Skellefteå. With the growing demand for sustainable energy sources, Boliden, together with Skellefteå Kraft AB, is now installing a €40 million transfer pipeline. This will lower the climate impact of both companies as oil and peat will be replaced by waste heat. Alfa Laval is a crucial partner in this project, supporting Boliden by monitoring and servicing all PHEs at Rönnskär.

## Contact Alfa Laval

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