High visibility for Alfa Laval in Sea Lapland with the delivery of large-scale heat exchangers

Outokumpu ferrochrome plant, Tornio, Finland **Case story**

Outokumpu's Tornio works is the world's most integrated stainless steel production facility.

Photo: Outokumpu

Outokumpu's Tornio works is the world's most integrated stainless steel production facility. The same plant area houses the ferrochrome plant and all the steel production departments: steel foundry, hot rolling mill and cold rolling mill. In addition, the plant area has a port for exporting products from the Tornio works and importing raw materials to the works.

The largest investment of its time in Finland is now complete. The new ferrochrome plant in Tornio was inaugurated in June 2013, doubling the production capacity in Northern Finland of ferrochrome, which is used as raw material to produce stainless steel.

The investment of approximately EUR 440 million in the new production unit was a large-scale effort on the part of the client Outokumpu as well as hundreds of structure and solution suppliers. Two intensive years were initially set as the deadline for the F3 project.

Alfa Laval was also closely involved in the project, which has attracted a lot of positive attention. It delivered new air and plate heat exchangers for cooling the sintering plant and steel plant water. Previously, sea water was primarily used to cool the water of the ferrochrome plant, but conducting waste heat into the air was considered more reasonable.

outokumpu
high performance stainless steel

Outokumpu's new ferrochrome plant in Tornio Photo: Outokumpu

Alfa Laval's air coolers Photo: Alfa Laval

"We offered the client a custom solution, based on which they decided to procure the equipment from Alfa Laval. Previous experience of cooperation also influenced the decision, as Alfa Laval has successfully supplied equipment to Outokumpu before," says Juha-Matti Kuoppala, Product Portfolio Manager at Alfa Laval Vantaa, who was in charge of the delivery.

"Outokumpu chose Alfa Laval's heat exchangers after making technical and financial comparisons," says Outokumpu's Janne Ollila, who was the area manager for the ferrochrome smelter plant in the project.

The plate heat exchangers were manufactured at Alfa Laval's Lund plant and the air heat exchangers in Vantaa.

High energy consumption a challenge for heat exchangers

The Tornio works uses as much as three per cent of all energy in Finland, for which reason the client paid particular attention to the energy solutions chosen.

The air heat exchangers made by Alfa Laval, with a length of more than 13.5 metres, are very large by Finnish standards. Their blower diameter is two metres and their performance is optimized to the needs of Outokumpu.

The air heat exchangers are located on the roof of the expanded plant and, due to their sheer size, can be seen from quite a distance.

"Our products were delivered to the site installation-ready: we had completed all the cable routings and electric wiring at the plant. The plug-and-play delivery was ready for installation down to the last component," says Juha-Matti Kuoppala.

The choice of materials for the Alfa Laval products delivered to Tornio was made with particular caution. In the process industry it is important for equipment to function reliably and to endure decades of use. In this way the maximum benefit is obtained from the important investment.

However, the mere manufacture and delivery of products is never enough. A significant part of the guarantee of quality was the training in their use, arranged by Alfa Laval for the operation and maintenance personnel of the Tornio ferro-chrome plant.

"Our primary task has been to ensure that everyone working with the heat exchangers knows our equipment through and through. So we arranged several half-day training events at the client's site," emphasizes Product Portfolio Manager Juha-Matti Kuoppala.

"The training provided by Alfa Laval consisted of both class-room and hands-on learning, which was what we wanted. It therefore covered the theory as well as the practice of heat exchangers," says, Janne Ollila, Head of Department, Outokumpu Chrome Oy.

Information on the Alfa Laval products delivered:

- Sintering plant air coolers
  Three FBLGS-1260-20-3A10-144-1DN125S8
- Water treatment air coolers
  (Smelting furnace vault and gas duct cooling water)
  Nine FBLGS-1200-20-3A10-216-2DN125S6
- Water treatment air coolers
  (Smelting furnace electrode equipment cooling water)
  Four FBLGS-1200-20-3A10-216-2D N125S6

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