

Case story

Pulp and paper plant, Indonesia

Compabloc boosts energy savings at pulp and paper plant

When one of Indonesia's leading pulp and paper plants upgraded their preheater with an Alfa Laval Compabloc heat exchanger, the results were immediate and impressive. By saving 197,760 MWh/year, the Compabloc paid for itself in under six months. And the savings continue to grow.





High operational demands

In Southeast Asia's rapidly expanding pulp and paper sector, a major Indonesian facility faced mounting challenges: aging equipment, rising energy costs, process inefficiencies, and stricter environmental standards.

The plant, which produces rayon and other cellulose-based products from wood, was dealing with frequent fouling, leakages, and blockages in its outdated shell-and-tube heat exchanger. Seeking a reliable, high-performance alternative, the company turned to Alfa Laval for a solution.

One key challenge stood out: the limited footprint in the stripper fouling condensate preheater position. Spiral heat exchangers or updated shell-and-tube systems either exceeded the space available or fell short in terms of its ability to recover the required amount of heat.

Additionally, the plant required full mechanical cleanability due to prior issues where chemical cleaning had proven inadequate. They wanted to feel assured that any new equipment was easy to open and provided full access for manual- or hydroblast cleaning.

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Compabloc: the compact, high-efficiency alternative

Taking all requirements into account, including tight footprint, fouling concerns, easy maintenance and performance targets, Alfa Laval recommended Compabloc, a fully welded, compact plate heat exchanger.

With over 35,000 installations worldwide, Compabloc is renowned for its reliability and thermal efficiency. For this application, several features made it perfect as a preheater:

Superior heat transfer: Exceptional thermal efficiency and energy savings.

Compact design: Small footprint allowed easy installation in the plant's existing space.

Reliable performance: C-Weld construction and laser-welded plates to optimize reliability.

High uptime: Turbulent flow patterns reduce fouling risk.

Easy access: The side panels provide full access for maintenance and mechanical cleaning, ideal for demanding applications prone to fouling and scaling.

Results: outstanding thermal performance and ROI

After detailed discussions and technical evaluations, the plant approved the Compabloc for their preheater upgrade. Installed in 2023, the system delivered immediate gains in performance. Compared to the old setup, the Compabloc achieved:

197,760 MWh/year

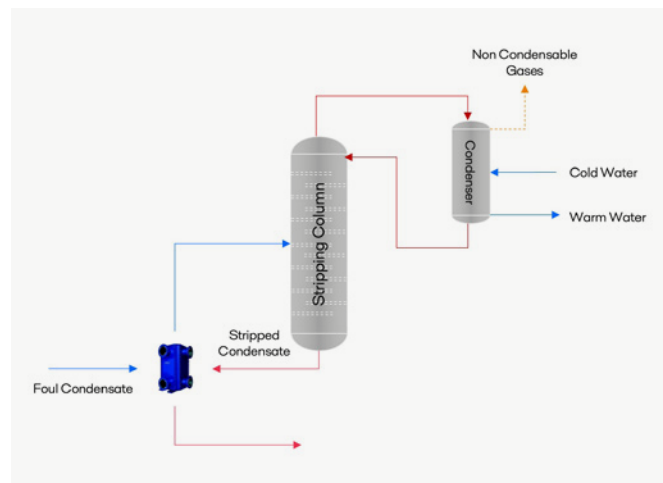
in energy savings

€7,910,300/year

in cost reductions by energy savings

35,597 tonnes of CO₂

emissions avoided annually



Foul Condensate Preheater

Foul condensate is fed through preheaters counter-current to stripped condensate to recover heat.

Crossing temperatures in a single unit maximizes energy recovery, reduces power bills, and boosts process performance. These results represent not just operational improvement, but a significant step toward the plant's sustainability targets.

A trusted partnership

The customer is highly satisfied with the outcome. A key factor in selecting Alfa Laval was their ability to precisely configure the solution to the duty, as well as the trust built through proven technical expertise and a strong local support network.

Although the Compabloc may have a higher initial cost than traditional alternatives, the customer team quickly saw that total cost of ownership, including lower maintenance, emissions, and unplanned downtime, was the better metric for long-term success.

Fast facts

Key outcomes

Energy savings:	197,760 MWh/year
CO ₂ reduction:	35,597 tonnes/year
Cost savings:	€7,910,300/year
Payback period:	<6 months

Operational benefits

Reliable performance with zero unplanned downtime
Compact footprint allowing increased capacity
Fully mechanical cleanability for easy maintenance
Additional heat recovery compared to old shell-and-tube



Contact Alfa Laval

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