



Recovering lost belt press performance

U.S. refinery saves on capital investment with a belt press rebuild

Case story

A southern U.S. refinery was seeing performance drop off from two almost 30-year old belt filter presses. They were thinking “replacement”, but Alfa Laval saw a way to restore performance at a much lower cost.

Over time, wear and tear can reduce performance of a belt filter press. However, you don’t always need to completely replace the equipment to restore the results you need.

The Situation

When a southern U.S. refinery started having mechanical and capacity issues with their two Ashbrook Klampress belt filter presses, they were concerned, but not surprised. The two 2.0-meter-wide machines were built in 1987 and 1992 and had delivered great results for three decades. The oldest machine was a Klampress Mark II that had been upgraded to a Type 85 during its life (upgrading an old design is a great way to increase performance without total replacement), and the “newer” machine was built as a Type 85. A refinery environment can be tough on equipment, and the wear and tear were starting to take their toll as the machines were not able to handle the desired feed rate or maintain the desired cake dryness consistently. They had also been required to make unplanned repairs on the machines in the prior months.

Performance of a belt filter press is critical for reducing the volume of liquid present in a sludge cake after dewatering. Every 1% of cake dryness increased can be several percentage points of overall volume reduction. For large facilities, this can mean thousands of pounds of reduction in sludge volume per day. If this sludge requires special handling or shipment to a landfill facility far away, thousands of pounds less sludge cake daily could mean a huge savings to the facility. Issues such as misalignment of belts, leaking hydraulic seals, or frame integrity can all impact how well a belt filter press performs.

Mechanical reliability is also critical in wastewater. If the facility is unable to process its waste appropriately and when planned, it could upset the balance of the plant resulting in environmental violations (which could potentially lead to high fines). In the case of a manufacturing facility, there is the possibility that (if sludge storage reaches capacity) the facility would face production challenges until the issues were resolved. As you can imagine, the importance of addressing any issues was high.



An example of an Alfa Laval AS-H belt filter press prior to rebuild (Alfa Laval service center photo)

The Options

When the refinery decided to call Alfa Laval, the solution they had in mind was to replace the two machines. The two belt filter presses had served the facility well, but 30 years is a long service life for equipment in this application. When something that old started having issues, replacing it outright with the same model made sense. It was a common practice for equipment in many refineries.

The call to Alfa Laval led to a visit from one of Alfa Laval’s water and wastewater experts. Before replacing major equipment, Alfa Laval feels it is important to have a thorough discussion and, if possible, see the process. This discussion is where an important understanding of the customer’s needs takes place, and the surrounding process can be evaluated to understand how the equipment fits into the greater picture. The process can be thoroughly evaluated, and options can be discussed that the customer may never have been aware existed. These discussions and evaluations of the process can also uncover more than mechanical challenges, as they can identify process issues that could be at the root cause of the issue. This may result in less cost, better performance, or other process improvements that lead to better customer outcomes. The expertise that is brought to the table in these conversations is a critical part of the Alfa Laval value proposition and, in this case, it led to some valuable insight for the customer.

The Alfa Laval expert on site had seen the issues pointed out by the customer in other installations. By understanding the root causes of the symptoms that the customer was seeing, they were able to identify several mechanical issues as well as some potential process challenges that could lead to the performance drop off experienced. The assessment determined that the structure of the machines was sound and that many of the issues could be addressed. It was recommended to the customer that before spending the capital on completely new machines, that they work with Alfa Laval to address the mechanical as well as process related issues on the existing belt filter presses. This would involve a partial rebuild of the presses at the customer's site along with hands-on training with the operators so they could be better prepared to address mechanical, as well as process, issues should they see any in the future.

A purchase order was placed for a field service specialist and the parts required to address the identified issues, and a date was scheduled for the optimization and rebuild.

The Outcome

Arriving on site, the certified Alfa Laval field service technician carefully reviewed the prepared list of itemized repairs and adjustments. Working closely with plant personnel, each item was addressed with parts being replaced as needed. Some of the repairs included multiple rollers and bearing replacements, along with replacement of all the support wear strips under the filter belts, rubber seals, hydraulic motor, tensioning and steering cylinders, steering/tracking valves and paddles, and much more. All of this had to be tracked and tuned in. Training was also performed with the operators, highlighting what key things to look for in the process that would identify that adjustments should be made. This type of training is part of what Alfa Laval feels is critical in building the trust and relationships with customers. Sharing knowledge and building the ability for the customer to be self-sufficient will help ensure that the customer is able to achieve the best results with their equipment, leading to a long relationship built on trust.

By choosing the option provided by Alfa Laval to undertake in the partial belt filter press rebuild and process optimization, the refinery saved over \$200,000 in expense. Between the repairs and training, the Alfa Laval AS-H belt filter presses were delivering cake dryness and throughput performance that was in line with expectations of a new machine. The customer is absolutely delighted with this performance and the ongoing cost savings related to less sludge volume and lower handling costs.

The Takeaways

Rebuilds and retrofits are a great way to address changing conditions and aging infrastructure without the full capital



An example of an Alfa Laval AS-H belt filter press after refurbishment (Alfa Laval service center photo)

investment of new equipment. With a rebuild or retrofit from Alfa Laval, you can potentially see the benefits of:

- A return to, or even increase in, throughput and cake dryness
- Fewer issues interrupting processing
- Less time required from your operators to address issues
- Peace of mind and assurance that only the highest quality OEM parts were used in your rebuild or retrofit

Taking the time to have a conversation with an Alfa Laval process expert can be tremendously beneficial to your process outcomes. While it may be easy to “just replace” old equipment, by investigating the entire process, as well as the equipment, you may learn that there are other issues and that the challenges can be addressed at a much lower cost. Alfa Laval will always work with you to understand your process, as well as your needs, and will put forth the best solutions for you.

To learn more about Alfa Laval expertise and solutions in water and wastewater, please visit us at www.alfalaval.us and see Water and Waste Treatment under the Industries menu.

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How to contact Alfa Laval

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