



Case Study Södra Cell Värö

# Improved energy-efficiency through upgrading



Photo: Södra. Photographer: Per Pixel Petersson.

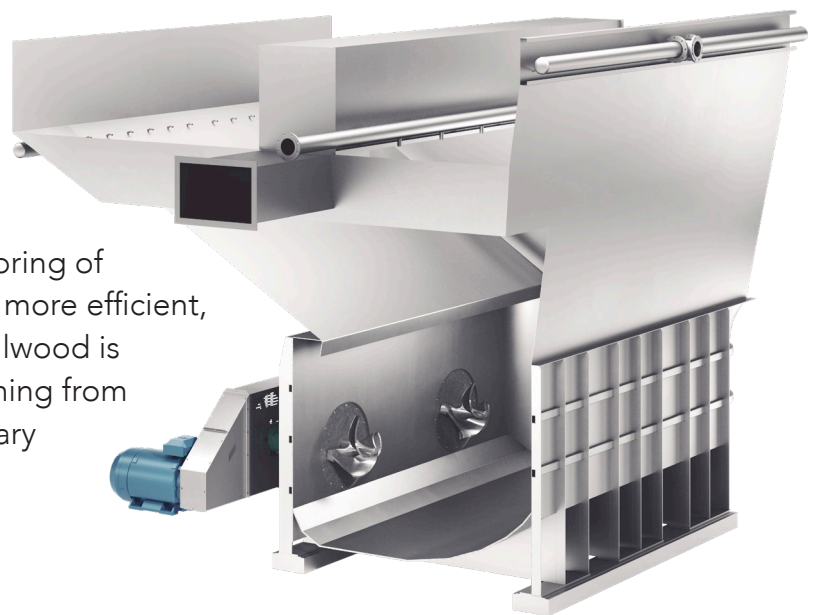
Cellwood Machinery



***"It's a 'monster machine' that handles everything we throw at it!"***

Jimmy Syrén

**As part of** a larger expansion program – "Expansion Värö 2.0" – Södra Cell Värö implemented an extensive modification of the existing pulper in the spring of 2020. The upgraded pulper is more efficient, quieter and more reliable. Cellwood is awarded gold stars for everything from thorough planning to exemplary documentation.



**W**e are extremely satisfied," says department manager Jimmy Syrén and relates that one and a half years after the installation he has not experienced any operating disturbances caused by the pulper. "It's a 'monster machine' that swallows everything!"

On the beautiful peninsula of Värö, in the municipality of Varberg, a little south of Gothenburg, Södra Cell Värö has produced pulp since the 1970's. Today, the plant is one of the world's largest and most modern softwood pulp factories with a design capacity of 780,000 tonnes per year. "To achieve this level, we needed to review the full picture, and we have implemented numerous measures throughout the plant. In our department, the pulper was a bottleneck. The aim was to cope with a capacity growth from 2,400 to 2,800 tonnes per day," tells Jimmy, and he explains

that this goal was achieved in connection with the world record (!) recorded in March 2022.

"No one has produced this kind of pulp faster than us. The previous record was 466 tonnes per day and meter width, which corresponds to a total of 2,796 tonnes per day. The pulper, which is located between the drying section and the cutter, was not in operation at this time. However, it would have pulled it off had it been needed. It is an assurance and a prerequisite for our capacity growth," Jimmy says.

In addition to two new rotor assemblies, belt drives, and belt guards, there were several modification parts and reinforcement plates for the pulper included in the delivery. The existing 80 m<sup>3</sup> vat, which used to have a conventional rectangular shape, now is shaped as a heart, which provides an entirely different flow and an optimal flow pattern for more efficient dissolving.



New turn plates cause the flow of the pulp to be directed down to the rotor, which also optimizes the dissolving results and minimizes the risk of splashing despite vigorous agitation.

The pulper has been adapted to be able to dissolve sheet as well as flash-dried bales, and in connection with the plant upgrade, the consistency loop was also redesigned. Now, the consistency is measured in a separate recirculation loop using a separate pump, which results in more stable measurements. By using the Grubbens pulper technology, dissolving becomes extremely efficient with reduced energy input, which means that the existing motors can be used whilst the capacity has been increased by approx. 17%, from previously 2,400 TPD to 2,800 TPD today. This is proof that the energy-saving requirement has been met.

**Tight time schedule**

Cellwood Machinery's project engineer Daniel Stenberg has worked on fine-tuning features and

solutions together with Södra's own system engineers. Although both the time schedule and the physical space for the reconstruction were challenging, to say the least, the work progressed smoothly thanks to meticulous preparations.

"Everything was properly measured and perfectly prefabricated. Deliveries arrived ahead of time, and everything has been right on schedule from day one. During the shutdown phase of just over seven days, we held regular coordination meetings. The challenges that did occur, which is always the case in large projects like this one, were handled in an outstanding manner," says Project Manager Per Spång via the AFRY engineering company while he at the same time gives extra credit for the documentation.

**Solid cooperation**

This is the first time Cellwood Machinery has made deliveries to Södra Cell Värö, but the companies are hardly unknown to each other. A few years ago, the sister facility, Södra Cell Mörrum, made a number of investments where Cellwood pulpers contributed to increased operational reliability and better broke handling with the outcome exceeding client expectations. In the most recent project for Södra Cell Mörrum, a pulper was supplied under the press section together with a broke conveyor from Metrans. Since March 2021, Metrans is a part of the Cellwood group.



Grubbens energy-efficiency S-rotor.

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"In the end, a transaction like this is all about the entirety and negotiation, but we also looked at references and we had big trust in the technology applied," says Jimmy and continues: "Cellwood can speak for themselves and present a concept that you can really believe in.

Proof of this is people in the right positions, that are passionate about what they do, and have the right prerequisites to perform the task. The collaboration has been excellent. We will definitely consider engaging Cellwood again in future projects," Jimmy Syrén concludes. ■



SCV Expansion 2.0 / Broke Handling



Rebuilt pulper vat for optimal flow pattern



Pulper vat during rebuild with the characteristic Grubbens design and S-rotors

