



HIGH PERFORMANCE TMP RETROFIT

SUCCESS STORY

ANDRITZ optimizes Norske Skog's TMP performance by merging new and second-hand equipment.

An aerial photograph of the Norske Skog industrial facility, showing various buildings, a large warehouse, and a ship docked at a pier, all situated along a body of water with hills in the background.

ANDRITZ



ANDRITZ and Norske Skog Team on site at Skogn mill in Norway.

"We would absolutely do this again"

Norske Skog chose ANDRITZ as project partner of the TMP (thermomechanical pulp) line installation at its Skogn mill, combining new and second-hand equipment. ANDRITZ's technical innovations not only ensured that everything would operate together as a single line, but also that it would fit into the existing machine hall.

With falling wastepaper quality causing higher purchasing, operating and environmental costs, Norske Skog decided to replace the deinking plant at its newsprint mill in Skogn, Norway, with a thermomechanical pulp (TMP) line. Norske Skog Skogn wanted a specific refiner type, which was similar to existing refiners at Skogn. This would help regarding operator training and spare part savings. If possible, Skogn would like to use second-hand equipment. As it turned out, there were only five of these units anywhere in the world, with only one available to buy second-hand – and ANDRITZ found it. But instead of just using ANDRITZ to source that one piece of equipment, Norske Skog ended up with ANDRITZ as a partner for the whole project.

DISAPPEARING WASTE LINE

Over the years, Skogn had seen its yield from waste-paper falling, because "demand from packaging mills means collectors no longer need to sort out deinking qualities, to get good prices. So we needed more wastepaper to produce each ton of newsprint. That means more sludge, more NO_x and CO₂ emissions, and more volumes going to landfill," explains Arild Hegdal, the project's Process Manager. So by switching to 100% virgin fiber, Skogn have put them in a position to be

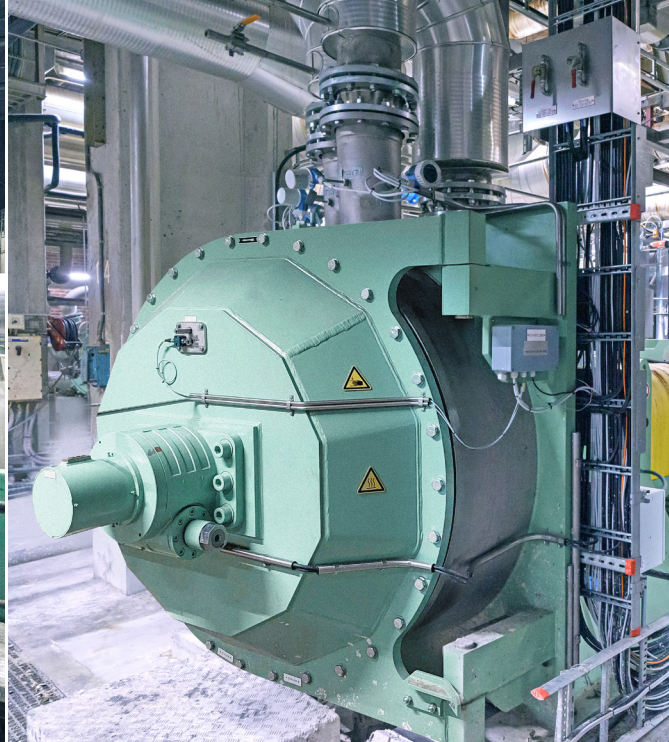
able to produce existing and new products based on renewable and sustainable resources with high yield (>93%) pulp as base. In addition, the project reduces the mill costs and improve its environmental performance.

Minimizing costs also applied to the capital expenditure on this project, which is why Norske Skog got so creative, buying as much of the equipment as possible second-hand. Altogether, more than 70% of the equipment for this "new" 110,000 t/y TMP line was actually second-hand, with two new units from ANDRITZ, and two other new units. As Arild Hegdal notes, "We only spent about one third of what a new line would have cost." The project was also granted governmental funding via the NO_x fund, due to its environmental benefits and reduction in emissions.





Skogn's TMP line with refurbished second-hand equipment.



New TF52 refiner for LC stage in the TMP line.

Seek and you will find

Arild Hegdal explains, "We travelled around the Nordic countries and found a lot of second-hand equipment," but for the main high-consistency refiner, they turned to outside suppliers for help. And only ANDRITZ succeeded in sourcing a second-hand example of the specific unit that Skogn wanted – from the Laakirchen mill in Austria.

But ANDRITZ didn't stop there. With its strong track record of working on competitors' equipment, ANDRITZ also bid to refurbish most of the project's other second-hand pieces, too. Arild Hegdal appreciates that, "ANDRITZ is used to renovating equipment from their competitors – we weren't worried about them working on machinery from other OEMs."

Furthermore, ANDRITZ also bid to supply a new low-consistency refiner and dilution conveyor, as well as proposing a creative design to make everything fit into the existing hall. Arild Hegdal explains, "This was a complex project, so we were glad to have ANDRITZ around the table with us. We didn't assume we knew everything ourselves and it is good to bring new thinking into the situation. The discussions with ANDRITZ brought us forward. When we did the pre-project study, we found that ANDRITZ was prepared to accept responsibility for the project, so we shared the risk." As a result, Skogn asked ANDRITZ to be project partner for the entire project, with the only exceptions being two new pieces of equipment from a competitor.



"We travelled around the Nordic countries and found a lot of second-hand equipment."

"ANDRITZ is used to renovating equipment from their competitors – we weren't worried about them working on machinery from other OEMs."

ARILD HEGDAL (ri.)

Project Manager Process, Norske Skog Skogn

ARVE TRÆTLI (le.)

Project Manager, Norske Skog Skogn

"Playing Tetris"

The whole new and old TMP line needed to fit into the hall where Skogn operates its three existing TMP lines. This included fitting the main refiners onto old foundations, where Skogn had previously operated two TMP refiners, before closing them in 2010. To fit the whole line in, ANDRITZ had to re-design and manufacture some of the connections that link up the various pieces. As Robert Pfeiffer, Director HC Refining Systems ANDRITZ, says, "It was a bit like playing Tetris to make sure it all fits! We had to modify some pressurized equipment." Emil Winge, Mill Account Manager & Startup Expert, ANDRITZ, adds, "We built the line around corners, to make sure it all fit into the hall." Arve Trætli, Norske Skog's Mechanical Project Manager at Skogn, admits, "There will always be some challenges when you try to install a new line into an existing building. Space for piping is tight. But ANDRITZ made adaptors for the refiners and motors as well as for connecting different parts. It was a lot of work in a tight space, on a tight schedule."

The fact that the equipment came from different locations also created other challenges in assembling the line, because none of it had ever been used together before. Indeed, some of the second-hand equipment hadn't been operated for more than 30 years! Arve Trætli confirms, "There was some troubleshooting, especially with the old, second-hand equipment, but the problem was solved, step by step. It was really good."

Since the full startup, Arild Hegdal reports, "The refiners are extremely stable and appear brand new. As it is new to the Skogn mill, it took some time to understand and to get up to speed with the new ANDRITZ Hydraulic Commander control system, but now we are confident in it." (The first- and second-stage refiners both now use ANDRITZ Hydraulic Commander control systems, which micro-adjust the gap between the refiner plates every millisecond. This controls refining intensity, to accommodate things like fluctuating loads and varying chip characteristics.) Arild Hegdal continues, "Even after the 'new' TMP line started up, together we found more ways to improve how it operates. ANDRITZ has been good in seeking solutions for the different challenges we had and together we solved them."



Plug screw feeder (PSF) 16 with preseatming bin.



"It was a bit like playing Tetris, to make sure it all fit! We had to modify some pressurized equipment."

ROBERT PFEIFFER

Director HC Refining Systems, ANDRITZ

Coming back for more

In the wake of this project, other orders from Skogn will follow. Spare parts are one example, with ANDRITZ now servicing the refiners on all of Skogn's TMP lines, including manufacturing parts for non-ANDRITZ equipment. This project, combined with the good relationship between the two companies, also means ANDRITZ is in the running for potential future orders in 2026.



ARVE TRÆTLI SUMS UP:

"If we had to do this all over again, we absolutely would. ANDRITZ was very easy to work with. It's good when you can tell that the supplier likes to be here."



SELECTED PROJECT HIGHLIGHTS

Second-hand equipment refurbished and delivered by ANDRITZ

- First-stage RGP76 CD refiner
- Second-stage RGP65 refiner
- ANDRITZ plug screw feeder PSF16
- Side entry plug feeder TFA390
- Ribbon feeder TFA560
- ANDRITZ F50W screen
- Preheater/discharge system PDA1410

New equipment

- ANDRITZ Hydraulic Commander control system for both HC refiners
- ANDRITZ low-consistency TwinFlo refiner
- ANDRITZ Dilution Conveyor

Shaping the next generation in the industry

Successfully combining old and new is something ANDRITZ, as well as Skogn have been doing for years – and not just with industrial equipment! Skogn is actually having success where many paper mills have been struggling, i.e. recruiting young people to work in this traditional industry, in an age when it might seem like everyone wants to work for Apple or be a social media star.

Arild Hegdal explains, "We have been successful in attracting young talent through our apprenticeship program and we have given them challenges and

responsibility in this project. For example, Andreas Nutudal (23 years old) and Kristine Veie (30) have been supporting me on this project and they now work on the production and process side at Skogn. Andreas started as an apprentice as a TMP operator and is now a superintendent in the TMP plant. Kristine is now a process engineer." Similarly, 22-year-old Niklas Staal's apprenticeship included working on the automation side of the TMP project, and Niklas is now a "very talented" automation lead on Skogn's PM 1 and PM 2.



NIKLAS STAAL



KRISTINE VEIE



ANDREAS NUTUDAL

ARILD HEGDAL IS CLEARLY CONFIDENT IN SKOGN'S FUTURE, SAYING,

"We believe in giving young people challenges and responsibility so they'll be staying for a long time."





CONTACT US FOR MORE INFORMATION ABOUT OUR TAILOR-MADE SOLUTION!

We're happy to take up your challenges!



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