



# SMALL STEPS TO BIG IMPROVEMENTS

The Holmen Group's Braviken Paper Mill, situated in eastern Sweden, has always prided itself on being at the top of its game when it comes to production efficiency and quality of final product. When it needed to further enhance its TMP's capacity and efficiency – but crucially keep costs to a minimum – ANDRITZ was at hand to provide a tailor-made solution.

A walk through the entrance to the Braviken Paper Mill tells one that the paper machines at this mill were once thoroughbreds in the world of newsprint production – the walls here are adorned with congratulatory world record-breaking plaques heralding a different time in the 1970s and 80s when newsprint was a dominating force in global papermaking.

Fast forward into the 21<sup>st</sup> century and the world of paper production is a completely different one; graphic paper demand has

declined dramatically, resulting in a highly competitive business environment with even the smallest production efficiency changes making a difference.

Fredrik Bragsjö, TMP Manager at Braviken says, "Our whole business landscape has changed over the years. At one time we were sending newsprint all over Europe, and even further afield across the world.

"Now we are much more focused on producing high-quality, wood-containing

SC papers for large volume catalogues and long run mass produced magazine titles, such as the still-popular weekly TV guides. We also produce book papers here at Braviken."

## A MIXTURE OF OLD AND NEW

The Braviken Paper Mill, which first began producing in 1977, could be described as a seasoned player in the modern history of papermaking, having been through the ups and downs of market demand trends in the industry. The mill has always been



The BR1 reject refiner needed a complete tailor-made solution to ease plugging

quick to adapt to these changing times, which means keeping a close eye on all the equipment being run, old and new, and making sure maximum efficiencies are being obtained.

The TMP plant at the mill is very much a mixture of old and new equipment, and the old TMP lines were pioneers in TMP pulp for newsprint paper. In fact, the occasion of its start-up was something of a national event at the time, with the King of Sweden symbolically pushing the big red start-up button.

"We have always had a mindset of continuously improving existing equipment at the mill," says Olle Lindeberg, Production Engineer, Braviken. "And it's not always about the glamorous picture of installing all things big, shiny, and new. At this time of a highly competitive environment, often you have to roll up your sleeves and deal with the older equipment, make it better, take smaller but effective steps, gradually eliminating the bottlenecks."

The latest in the line of many small-step improvements at the mill was the rebuild of its "BR1" reject refiner. "We wanted to improve the quality of the pulp, increase tensile strength, and reduce shives with the aim of making the pulp more suitable for a smooth surface on the paper we produce. And of course, look for ways to reduce energy," says Bragsjö.

Erik Muggerud, Senior Process Specialist, ANDRITZ, adds, "The mill also wanted an increased capacity and simplification of its BR1 reject refiner. The main goal was to create a barrier (plug) for steam as close as possible to the refiner to be able to increase the production rate, at the same time as reducing energy usage."



Left to right: Fredrik Bragsjö, TMP Manager, Braviken; Olle Lindeberg, Production Engineer, Braviken; and Erik Muggerud, Senior Process Specialist, ANDRITZ

## A TAILOR-MADE SOLUTION

Due to the many rebuilds over the years, a simplification between the reject screw press and the refiner meant taking out some of the old equipment, but also reusing as much as possible of the existing equipment. A side entry plug feeder, chute, and level conveyor were then installed as well as a new ribbon feeder housing.

The complexity of the project and space constraints in the refiner area meant that it was not possible to use standard equipment and the ANDRITZ team had to innovate with a tailor-made engineered solution.

The first customer contact for the project was in 2016, with the contract signed in April 2017. Removal and erection work started in September 2017 with start-up taking place just five days later.

"ANDRITZ experts came up with the perfect solution, mostly due to the intense knowledge they have both of TMP and of our plant at Braviken," says Bragsjö. "It would have been easy to have just taken out the old and replaced with new equipment, but cost constraints did not allow this, and it means we can now spend our valuable resources on solving the next bottleneck."



Bragsjö (l) and Muggerud discuss production issues in Braviken's TMP control room

Crucially, and one of the bonuses of moving the plug as close as possible to the refiner, safety at the TMP plant has been greatly improved. Muggerud says, "The reject pulp will not have to cope with the backflow of steam that can plug the chute down to the refiner feed. There is always a danger to operators when plugged pulp needs to be removed from the chute; this makes a big difference to safety at the mill."

Has the rebuild of the BR1 reject refiner achieved the results the mill was looking for? "I would say a definite 'yes', says Lindeberg. "We have increased capacity and have better quality pulp and a safer working environment, but, added to that, the renewed BR1 comes with much greater flexibility, meaning we can adapt the refiner for making pulp for SC paper and then change it again when making book paper."

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