

A VOYAGE OF DISCOVERY

Partnering for success

There are a lot of boundaries being pushed at Altri's Celbi eucalyptus pulp mill in Portugal. The company firmly believes in maximizing its production assets to the hilt, often going where no others dare. ANDRITZ has been a reliable partner in Celbi's remarkable transformation over recent years, which has seen it become a world leader in efficient pulp making.

Portugal is world famous for its early explorers, those brave men who set out in the 14th and 15th centuries to cross the oceans of the world with no idea of what they might find over the horizon.

Fast forward to the 21st century, and far flung places are all pretty much discovered; however the Portuguese spirit of adventure – and the ability to push the boundaries of discovery – are still very much alive – particularly at some of the pulp mills in the country. Altri's Celbi mill is a classic example of this continuing spirit.

A SUM OF IMPROVING PARTS

About two hours drive north of Lisbon, the Celbi mill is not old by European standards. Being built in the 1960s, it has had a colourful past of ownership, including Billerud and Stora

Enso. In 2005, Stora Enso divested the mill and it was bought by the Altri Group and became its first foray into the world of pulp. "This was great news for the morale at the mill," says João Gaspar Rebola, Production Manager at Celbi. "It meant that finally we got the attention and investment that the mill was crying out for."

At the time of the acquisition by Altri, the mill was producing some 300,000 tons of pulp per year, and it quickly became company strategy to double that quantity. In 2009, transformation of the mill began with a wave of projects, starting with "Project C09", a complete rebuild of the drying machine in its existing building (see SPECTRUM 19/1-2009, Raising the Roof). This was a spectacular project that saw a huge capacity increase at the mill with a shutdown lasting only four weeks.

After the initial start-up of the drying machine, production at Celbi leapt from 900 t/d to 1,815 t/d (540,000 t/y).

"This was our first major, successful project working with ANDRITZ," says Rebola. "And we quickly became aware that we were working with a company that was not frightened to partner with us on our ambitious journey."

In the case of the dryer, ANDRITZ had made sure that there was the possibility of a further capacity increase in the future; a second improvement took place in 2015 that included a headbox upgrade and a second shoe press, which allowed capacity to increase further to a 2,320 t/d (700,000 t/y).



The Monument to the Discoveries, Lisbon, honouring famous Portuguese explorers including Bartolomeu Dias, Vasco de Gama, Magellan and Cabral - adventurers who first discovered such places as The Cape of Good Hope, India, Japan, and Brazil.

That ambitious journey, and the Celbi - ANDRITZ partnership, has continued with fervour. "Since the start-up and maximization of the dryer's efficiency, we have set about looking at every area of the mill, not just solving bottlenecks, but finding all the areas where we can make a difference to production in both quality and quantity," says Rebola. "The sum of all those different, improving parts has allowed us to increase production figures across the board at the mill."

Serra Braz, Project Manager at Celbi says, "We rarely have a piece of equipment at this mill that is not pushed beyond its limits. I have worked on a number of projects with ANDRITZ here, and whilst the first trial is not 'always there' the results just get better and better."

The improvements at Celbi are working well judging by the results; the mill holds the record for air-dried metric tons per day (ADMT) per meter of working width at 475 t/d on the 4.88 m wide sheet dryer.

INCREASING THE YIELD - A MAJOR CHALLENGE

One of the recent additions to further improve and enhance production at the mill was a fiberline technology upgrade to the digester in 2015, which is now in its optimization phase. Once again Celbi chose ANDRITZ, this time for its Lo-Solids cooking solution, which has seen a lot of success at Latin American mills. The key objective of Lo-Solids cooking is to minimize dissolved organics concentration through the bulk phase delignification while

maintaining an even alkali profile, low cooking temperatures and low dissolved lignin concentrations at the end of the cook. The resulting advantages of Lo-Solids technology are increased pulp strength, decreased cooking and bleaching chemical requirements, and a significant improvement in overall operation.

The scope of supply for the cooking modernization at Celbi included a TurboFeed chip feeding system with Diamondback chip silo, chip metering screw, chip pumps, and vapour reboiler for the heat recovery.

Rebola says: "We wanted to increase the yield as well as the production at Celbi to continue with our holistic approach to our pulp production. ANDRITZ really helped us with its knowledge of production at some of the largest and most modern and efficient mills in Latin America.

"As well as the added benefits that the Lo-Solids cooking process has given us, including the stabilization of the quality of pulp, we have also noticed a major reduction in the amount of energy we use which means we can export more to the national grid. This is a big thing for Altri."

The digester and fiberline upgrade has made another real difference to production at Celbi; however, it was not all plain sailing on this particular Voyage of Discovery - there were major difficulties at first when introducing new technology into the existing space. Carlos Van Zeller, Mill Director and Member of the

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Board at Celbi, explains, "If you asked me whether the upgraded digester worked perfectly from day one, I would have to be honest and say 'no'; in fact we had a huge amount of problems to begin with. But this is why we like working with ANDRITZ; we throw its managers and engineers ambitious, sometimes outrageous demands, and they come back with ideas and plans, and then ultimately together we get results. The company really does live up to its slogan: We accept the challenge!"

Jorma Olkkonen, Senior Project Manager, Fiber Technologies at ANDRITZ, explains, "This upgrade presented several challenges on the engineering front to bring together existing processes and merge them with a new mode of operation and equipment. The shutdown period is, of course, always short and brings additional challenges to the

project. But with the forward looking attitude of both the Celbi and ANDRITZ teams, those challenges were tackled and the plant started up according to schedule.

"Now we have entered a phase where both Celbi and ANDRITZ co-operate together to find solutions to upgrade the plant to an even higher level."

THE VOYAGE INTO THE FUTURE CONTINUES

There is a mutual respect and regard that runs through the Celbi - ANDRITZ relationship, which continues to flourish into productive activity. The next project between the two companies will start up in October this year - this time a new ANDRITZ supplied DD-Washer, part of the upgrade of the mill's brown stock washing process. This upgrade

will substantially improve the washing efficiency, as well as increase the capacity of the fiberline.

Of the decision to install the DD-Washer, Vitor Lucas, Process Development Manager at Celbi, says, "We carried out a lot of comparisons in washing technology before we decided to go ahead with the DD-Washer. Historically, we have always had presses at this mill, but having looked at references around the industry, including mills in Brazil, we are confident that the DD-Washer will deliver on our expectations and stabilize production even further. Actually, we are quite excited about it!"

And how about ongoing production and maintenance, how have the two teams of Celbi and ANDRITZ been cooperating for

continued success going forward? Paulo Jordão, Industrial Maintenance Manager at Celbi, says, "ANDRITZ has been instrumental in assisting us with our long-term ambitions. We always set a high bar, and ANDRITZ continues to jump over it with us - joining us in the risk, and of course the successes, as together we keep improving on the initial installations and the next production achievements."

Van Zeller concludes, "At Celbi, we don't want to be the biggest pulp supplier in the world; however, we do want to be the most efficient and the most competitive. And we have proved that we can be.

ANDRITZ has been a dedicated and reliable partner along the way."

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(L to R): Henrique Costa, Fiberline Operation Manager, Celbi; Vitor Lucas, Process Development Manager, Celbi; Paulo Jordão, Industrial Maintenance Manager, Celbi; João Gaspar Rebola, Production Manager, Celbi; Werner Rechberger, Director Sales Pulp Mill Systems and Pulp Drying, ANDRITZ.



ANDRITZ supplied the latest technology for the digester and chip feeding system at Celbi.