

Hard to improve

Metsä Group bioproduct mill, Äänekoski



Metsä Fibre is a leading producer of wood-based bioproducts such as pulp, sawn timber, biochemicals and bioenergy. The company manufactures pulp and other bioproducts at four mills in Finland. Sawn timber products are manufactured at five sawmills in Finland and one sawmill in Russia. The products are known for their high quality, which is based on the unique properties of northern wood.

Metsä Fibre belongs to the Finnish forest industry group Metsä Group. Metsä Fibre is owned by the parent company Metsäliitto Cooperative, Metsä Board and ITOCHU Corporation.

Metsä Group's bioproduct mill in Äänekoski, which started operations in August and produces 1.3 million metric tons of softwood and birch pulp per year, is the largest investment in the Finnish forest industry to date. The two-year project is also one of the most significant of its size for Endress+Hauser Finland, which supplied the measuring instruments for the mill.

The bioproduct mill, which started operations in Äänekoski in August, was a major investment. The employment impact of the mill across its value chain in Finland is more than 2,500 jobs, of which around 1,500 are new. The most significant employment impacts are expected in forestry and transport. The mill receives exactly 240 truckloads and 70 train cars of raw timber per day.

The bioproduct mill replaced the pulp mill that had been in operation

since 1985 and was reaching the end of its service life. This is the world's first new-generation bioproduct mill and produces nearly three times more pulp than its predecessor. At the same time, the process produces other bioproducts, such as bioenergy, traditional biochemicals (tall oil, turpentine) and new bioproducts (product gas, biogas and sulfuric acid). The mill utilizes 100% of the wood raw material and production side streams, and no fossil fuels are used in the production. The mill's electricity self-sufficiency is a staggering 240%. The surplus is sold as bioelectricity to the grid, among other things.

Investment of €1.2 billion

It is largely due to excellent project management that the mill project stayed on budget and the mill even began operating a few minutes ahead of schedule: August 15, 2017, just before six in the morning.

The deliveries to the mill also marked a larger than usual project for Endress+Hauser, starting almost two years ago, at the same time as the construction of the mill.

“We supplied the mill with instruments for a total of more than 2,000 measurements. In addition to the main processes of the fiber and liquor lines, we supplied pressure, level and analytical measurement instruments for the water and raw water plants, among others. Our own equipment was complemented by consistency measurement supplied by our partner Valmet,” says **Tapio Vesiluoma**, Project Manager at Endress+Hauser. In the choice of equipment, it was particularly important to take into account the conditions and challenges associated with the manufacturing processes of pulp and other bioproducts. For example, the pH measurement of the tall oil by-product requires instruments made of materials resistant to hot and corrosive substances.

Flexibility in working and delivery times

According to **Timo Neuvonen**, project engineer for recovery instrumentation at the bioproduct mill, the close cooperation started with planning, which involved jointly selecting the right equipment for the right places. The most important factors for planning and project management are expertise and problem-solving skills, as well as trust, which became strong during the two-year project.

“An essential part of our cooperation is that the supplier always knows

its equipment best. The cooperation went so well that it would be hard to improve from this. Our personal chemistry was on point from the start, and I appreciated Endress+Hauser’s commitment to the project. Tapio was always available when needed,” says Neuvonen.

Metsä Group’s starting point was to order as large set of equipment as possible from the same supplier, making it easier to maintain the equipment and obtain spare parts. **Jarkko Kivimäki**, project engineer for the instrumentation of the bioproduct mill’s fiber line, praises Endress+Hauser for the flexibility it showed in terms of delivery times.

“During a mill’s construction phase, the security of supply and prompt deliveries are everything. If a given component is not available on time, it can also halt the next stages of the installation, which threatens the entire project schedule,” says Kivimäki.

Flexibility also includes Endress+Hauser’s ability to tailor its products to customer needs. At the Äänekoski site, this meant things such as the use of special materials in the manufacture of products to be installed in particularly challenging process conditions.

“The engineering departments in our factories modify our products to meet our customers’ needs if they have special requirements. Careful planning, understanding the process conditions and adapting products to them are essential for a successful measurement position,” says **Sami Rautiainen**, the head of the sales team at Endress+Hauser.

Information platform for reliable data storage

According to Project Manager Tapio Vesiluoma, a valuable tool in project management was the W@M information platform developed by Endress+Hauser, through which data from the delivered equipment is stored in a single system. W@M is a platform solution that includes all the necessary tools for effortless equipment base management. The W@M concept enables the use of equipment data accumulated in the supplier’s databases and provides a single interface to all of the information related to the equipment across its entire life cycle.

After the implementation phase of the project, responsibility is transferred from Endress+Hauser’s project manager to the sales manager responsible for the account. **Mika Eerola**, who took on this job, can make use of the equipment base data and correspondence collected during the implementation phase.

“With the data stored in W@M, we can quickly see what has been delivered and where, and respond to additional orders quickly and accurately,” says Eerola.

Overall, Metsä Group’s Äänekoski bioproduct mill has been a very important two-year project for Endress+Hauser and the cooperation will continue for a long time. The mill is up and running, with high-quality measurements to back it up.

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Picture: Mikko Tikka/Fotonokka

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