

Leading Danish sawmill achieves performance improvements with CC-Link IE

When Dansk Træemballage A/S (DTE) looked at how to increase the precision and productivity of its sawmill one of the major challenges was to establish the right automation control network. As the biggest producer of wooden packaging in Denmark the plant includes over one hundred inverter drives, all of which needed to be controlled simultaneously and in real-time. The technology used to address this challenge was CC-Link IE, the only open gigabit Ethernet designed specifically for industrial automation tasks.

DTE's sawmill is located in Ribe, Denmark and dates back to 1581. It is now the mainstay facility for the company's pallet production activity. Everyday, approximately 35 trucks bring conifer logs to the saw line to produce lumber, resulting in over 300,000 m³ of raw timber being processed every year. This is then exported or distributed across DTE's five production sites to obtain 150,000 m³ of finished wood that is used to assemble crates and pallets.

The sawmill comprises a number of stations, which turn logs into rough-cut timber and eventually finished lumber by performing debarking, profile cutting, sawing, sorting and stacking activities. All these stages require high-quality, reliable and responsive inverter drives to correctly position and power processing equipment such as grinding rolls and saw blades.

"Running a sawmill means continuously improving the speed and productivity to get the most out of the raw materials. A quality finish is also particularly important for DTE, as we mainly focus on the food industry, which has strict standards on the end quality of the crates and pallets," Orla Poulsen, Owner of DTE, explained.

An interconnected and responsive mill

To keep operations at the site in Ribe smooth and efficient, DTE needed a communication network technology able to connect the inverters to PLCs and ensure that the machines could instantly adjust their parameters for optimal performance. Thus, the company appointed Hans Folsgaard as its technical partner to upgrade the plant automation system. Carsten Olesen, Technical Manager at Hans Folsgaard, agreed with Orla Poulsen: "Accuracy is fundamental. This is why DTE asked us to find a fast network technology."

Effective high-speed transfer of data creates a highly responsive system, Lars Venborg, Technical Manager at DTE, commented: "In order to improve the quality of our lumber and increase our productivity, we wanted better precision and a faster reaction from the variable frequency drives across the processing line. The old network



had become slow by comparison and could no longer support our manufacturing needs.”

The choice of which network solution to use was immediate for Hans Folsgaard - the team selected the Ethernet technology with the largest bandwidth available; CC-Link IE. This provides data transfer rates of 1 Gbps for high-speed communications. Also, by offering a maximum of 254 stations per network, the solution could accommodate all the variable frequency drives across the saw line as well as supporting future growth.

John Browett, General Manager of the CC-Link Partner Association (CLPA) Europe, explained: “CC-Link IE is the world’s first and only open Gigabit Ethernet for automation. As such it offers higher performance capabilities than any other industrial Ethernet. DTE is using CC-Link IE to build a very large network of inverters that operate the sawmill. The result is higher productivity and increased business competitiveness as quality and output both rise, without changing the mechanical aspects of the plant machinery.

“It is very important that DTE can get the maximum yield out of each log. By benefitting from the high-speed response time and bandwidth that Gigabit Ethernet offers, the machines on the saw line can assess the dimensions of each log as it goes through the mill very accurately and in real-time. In this way, DTE can make the most of its raw materials.”

A user-friendly and future-proof solution

By choosing CC-Link IE, DTE will also benefit from an easy-to-use system that simplifies management and maintenance in the future. “It is very easy to work with CC-Link IE. When we chose this solution, we also considered maintenance activities and the future of the sawmill. It will be very easy to replace or add inverters, when required, as we will not have to change anything in the software setup,” commented Lars Venborg. “CC-Link IE offers a smooth setup that does not require any programming” Carsten Olesen further explained.

Not every network offers such a flexible platform to build upon, continued Lars Venborg: “This was not the case with our existing system: we had to modify the software every time we replaced an inverter. As a result, we used to struggle with downtime, and we always needed both technicians and programmers to replace or add a drive, affecting uptime and productivity.”

CC-Link IE technology quickly proved its worth, with DTE instantly reaping the many benefits of the network implementation. Orla Poulsen concluded: “CC-Link IE will help us to continuously improve the productivity and performance of our sawmill. Even better, we also are achieving this in a cost-effective manner.”



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CLPA291 DTE Case Study



About The CC-Link Partner Association (CLPA)

The CLPA is an international organisation founded in 2000 dedicated to the technical development and promotion of the CC-Link family of open automation networks. The CLPA's key technology is CC-Link IE, the world's first and only open gigabit Ethernet for automation and an ideal solution for Industry 4.0 applications due to its unmatched bandwidth. Currently the CLPA has over 3,400 member companies worldwide, with more than 1,800 certified products available from over 300 manufacturers. CC-Link is the leading open industrial automation network technology in Asia and is becoming increasingly popular in Europe and the Americas.

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