

## **Largest Danish manufacturer of wood packaging 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 first open gigabit Ethernet designed specifically for real-time 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. Every day, approximately 35 trucks bring conifer logs to the saw line to produce lumber, resulting in over 300,000 m<sup>3</sup> of raw timber being processed every year. This is then exported or distributed across DTE's five production sites to obtain 150,000 m<sup>3</sup> of finished wood that is used for wood packaging like crates and pallets.

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

"Running a sawmill means continuously improving the speed and productivity to get the most out of the wooden raw material. 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, like mechanical stability and dimensional accuracy," 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 robust industrial network able to connect the inverters to PLCs in the harsh production environment and to ensure that the machines could safely and instantly adjust their parameters for optimal performance. Thus, the company appointed specialist firm 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 automation network."

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 higher speed and therefore faster responsiveness from the variable frequency drives across the processing line.

The old fieldbus 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 open industrial Ethernet technology of CC-Link IE. This provides data transfer rates of 1 Gbps for high-speed communications. Also, by offering over 120 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 was the world’s first open Gigabit Ethernet for automation. As such it offers high performance capabilities. DTE is using CC-Link IE to control the inverters spread across the shop floor. The result is a more reliable and productive application as well as 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. When required, it will be very easy to replace or add inverters during operation 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 previous 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

**Image 1:** The technology used to address this challenge was CC-Link IE, the first open gigabit Ethernet designed specifically for industrial automation tasks.



**Image 2:** 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.



**Keywords:** CC-Link Partner Association, CC-Link IE, wooden packaging, open gigabit Ethernet, Denmark, DTE, power processing equipment, food industry, technology, sawmill, downtime, plant availability, productivity.