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# For CLT and glulam

## Combined complete systems for an easier market entry

For only a few months, a Combi-Press by Danish machine manufacturer Kallesoe Machinery of Lem / DK has been in use in the state of Washington. For Vaagen Timbers, it is the entry into the glulam sector. For Kallesoe, it is the first installed high-frequency combined system for CLT and glulam and a perfect gift to celebrate the company's 50th anniversary.

by Günther Jauk | Kallesoe

Entering the cross laminated timber sector involves considerable financial expenses. Nonetheless, almost every major timber company in Europe deals with CLT one way or another. North American production, however, is still in its infancy. Only a handful of local manufacturers share the market across the Atlantic.

One of those manufacturers is Vaagen Timbers. The company built its first glulam production facility right next to the Vaagen Brothers Lumber sawmill in Colville. The start-up took place in April this year, about 18 months after having ordered the machines. However, the company has considered this step for a much longer time. "For more than six years, we have dedicated ourselves to cross-laminated timber. During numerous travels we informed ourselves about different production systems and finally found a solution, which we particularly liked, at Hasslacher in Austria", tells us CEO Russ Vaagen referring to the Kallesoe high-frequency presses used

by Hasslacher Norica Timber for the production of CLT and glulam in Sachsenburg and Stall in Mölltal.

*"The possibility to produce CLT and glulam with one system – and with a high frequency press above all – was the ideal solution for us."*

*Russ Vaagen, Vaagen Timbers*

### Easier market entry

While Russ Vaagen closely studied cross-laminated timber in the past years, Kallesoe Machinery was working intensively on a new press which makes it possible to produce glulam and small format CLT of up to 1.25 meters

in width with the same machine components. "The basic idea was a flexible and cost-effective complete system which is supposed to make it considerably easier for our customers to enter the CLT market. The result is our Combi-Press", recalls CSO Bruno Kallesøe.

It was precisely this flexibility in production combined with the preferred high-frequency technology which prompted Vaagen to buy the press: "This newly developed system was the ideal solution for us. Also, Kallesoe took the necessary time and adapted the machines to our individual needs."

### Quick change from CLT to glulam

Thanks to the variable adhesive application and conveyor system developed by Kallesoe, the glulam laminations are glued from above. Then, the single laminations are conveyed transversely, aligned vertically, packaged and fixed. The mechanization then places the package on the conveyor belt of the feed system and moves it into the high frequency

press. The maximum height of the beams is 1.25 meters, the maximum width is 290 mm. In theory, there is no limit in length. It depends on the space in front of and behind the press and is adapted by Kallesøe according to the customer's requests. Depending on the dimensions, the Danish company estimates production output at 60 to 180 m<sup>3</sup> per shift (7.5 hours).

When one switches to CLT, the longitudinal laminations are glued on the edges before they are grouped into a layer and placed on the belt as well. This belt then passes the layer under an adhesive curtain on to a vacuum lifter, which places the crosswise layers on the glued longitudinal laminations.

On the way back to the feed, the package is glued a second time from above and is ready to receive another layer of longitudinal laminations. The application of the 2-K-MUF adhesive is done by a Kontimix 2Z1 dosing system by Oest (see page 59).

These processes are repeated until the desired number of layers is reached. Afterwards, the pressed material is fed into the press, where the high-frequency technology quickly cures the adhesive. As to cross-laminated timber, Kallesøe estimates the output at 30 to 50 m<sup>3</sup> per shift.

Currently, the Combi press' output of glulam and CLT is fairly balanced at Vaagen Timbers. In the coming years, however, there will probably be a shift towards glulam. The reason for this is another planned big high-frequency press for CLT, similar to the one at Hasslacher, which Vaagen Timbers is going



to use for the production of large format CLT elements for the rapidly growing North American market.

#### Popular technology

Not only Vaagen Timbers is interested in the high-frequency complete systems manufactured by Kallesøe. According to Bruno Kallesøe there is "considerable interest around the world". However, he only wants to talk about confirmed projects. For example, one system is on its way to Canada. Kalesnikoff Lumber plans to produce glulam and ➤

**1:** Just a few months ago, Kallesøe's first Combi-Press was started up at Vaagen Timbers

**2:** The system produces glulam and small format CLT

**3:** Both parties are very pleased with the result: Russ Vaagen, CEO of Vaagen Timbers (left), and Kristian Kallesøe

**4:** The high-frequency press is the heart of the system

**5:** Kallesøe also supplied the entire mechanization

**6:** Depending on the specific requirements, either glulam or CLT press cakes, like this one, are formed.



CLT in British Columbia starting in 2020 for which complete systems by Kallesoe will be used.

Unlike Vaagen Timbers, however, the company opted for a more powerful system layout with separate CLT and glulam presses.

As to Europe, Kallesøe talks about two further systems for Hasslacher at the former Nordlam production site in Magdeburg as well as a system ordered by the Norwegian company TEWO. Hasslacher will receive a high-frequency glulam press and a combined system for glulam and small format CLT. A system for the production of three-layer panels and cross-laminated timber will go to Norway. Both projects are scheduled to go into operation in 2020.

### Anniversary of the complete supplier

In this context, Kallesøe emphasizes that his company not only supplies the presses for all four mentioned projects, but also acts as a complete supplier: "Our high-frequency presses are only the core of our projects. We also supply adhesive systems, the entire mechanization and provide the planning of the complete production line from the infeed of the wood to the finished product, so as to give customers precisely the system solution which meets their specific requirements", informs us the company's managing director, emphasizing that in such extensive projects, it is first and foremost experience which plays a central role. The company had plenty of time to gather experience: Foun-

ded in 1969, this year marks Kallesoe's 50th anniversary.

Just a few months ago, Kallesoe presented another new development which coincided with this anniversary and was an answer to repeated calls for resource-efficient production methods: A system for the production of single-layer panels made of conical laminations. These elements – usually sideboards with the bark – which are otherwise difficult to process, are measured, analyzed and then rotated and put together.

The next steps are the adhesive application and the pressing cycle in the high-frequency unit. Kallesøe can imagine numerous areas of application for the finished panels, for example a cost-effective middle layer for CLT.

