



Holzbauwerk Schwarzwald managing director Jörg Kübler (left) together with Andreas Bauer, head of design and joining, in front of the PBA-Industry

A breath of fresh vacuum

Vacuum table for CLT joining increases flexibility

A few weeks ago, the newly founded Holzbauwerk Schwarzwald produced its very first CLT panel in Besenfeld/DE. Even before this happened, the company put one of Hundegger's PBA-Industry machines into operation. Thus, Holzbauwerk Schwarzwald eliminated a potential bottleneck in advance and became one of the first to implement the new vacuum technology of the joining specialists from Hawangen/DE.

by Günther Jauk

In Seewald-Besenfeld in the German district of Freudenstadt, a very special cross-laminated timber project is currently taking shape. Holzbauwerk Schwarzwald is the result of three family-owned businesses joining forces to put a feasibility study into practice that was originally initiated by Forum Weißtanne. The three sawmills and further processors involved – Echtle (Nordrach), Kübler (Haiterbach) and Streit (Hausach) – not only have the necessary raw materials but also bring their know-how for panel production and joining to the table. „Each of us has their own strengths which we are combining for this project,” reports Jörg Kübler, who runs the company together with Manuel Echtle. While

the latter's area of expertise is the production of three-layer boards, Streit is primarily responsible for lumber production, and Kübler is the group's expert for joining.

The overarching goal for the two managing directors is the project-based production of panels of an exceptionally high quality – which will partly be made from silver fir, a raw material that is not always easy to handle (see interview p. 48).

Vacuum table increases flexibility

Even before the CLT line – a complete system from the Weinig Group – was put into operation, Holzbauwerk Schwarzwald in Besenfeld started its joining operation using purchased

boards. „Since we were already very active in the CLT business as a joining center, we wanted to launch our own CLT cutting line as quickly as possible. This way, we were early with our joining efforts and were able to put our PBA-Industry into operation without any production pressure. Plus, this gave us enough time to thoroughly test the newly developed vacuum table by Hundegger,” Kübler explains.

While previously, the PBA line was equipped with an automatic clamping system, Holzbauwerk Schwarzwald received one of the machine specialist's first three machines with vacuum table. This alternative fastening method for the elements allows for fixing small, light-weight components without



The vacuum table enables machining at the edges of the panel bottom



The simultaneous infeed and discharge of the panels saves time. The vacuum punches are lowered one row at a time during panel discharge and automatically cleaned

having to reduce the processing speed. By raising the panel by 40 cm, also the edge portions on the underside of the panel can be processed. In addition, individual panel portions can be lowered by means of the separately controllable vacuum cylinders; this enables face processing within one nesting.

High system performance

Hundegger developed the PBA-Industry specifically for the requirements of the cross-laminated timber industry. Thanks to its extremely solid construction – the frame alone weighs 40t – the system is particularly low in vibration. A modern portal construction technology as well as a multi-point linear system ensure extreme torsional stiffness and optimized running smoothness.

The necessary chipping performance is achieved by means of an air-cooled high-performance spindle which was also newly developed. „Previously, you either had to compromise on speed or torque. Motors with high speeds and low torque are perfect for milling – for sawing, however, it is the other way round,” explains Thomas Ilg, head of the panel machines division. The 62 kW spindles used on the PBA Industry can reach up to 12,000 rpm at 50 Nm, but – if necessary – also 150 Nm at 1500 rpm are possible, and as such the machine is equally suitable for both milling and sawing. Hundegger exploited a great

savings potential with minimizing the secondary processing times. Infeed and discharge of the panels is now happening simultaneously, and the vacuum punches are lowered one row after the other and cleaned automatically (see image on the bottom left). Another automatically controlled feature is the calibration of components via camera system.

Furthermore, Hundegger developed an automated cleaning system for the processed panels specifically for the PBA-Industry. Here, the brushes automatically adjust to the panels' thickness and cleans them. A rotating blow-suction unit cleans the recesses directly after that.

A smooth start

For Kübler, it was clear from the start who their joining system supplier should be: „We have been working with Hundegger for almost 30 years already. Their control system and software are very user-friendly and efficient. With our experience, we were able to launch our panel joining line quickly and at the same time test the vacuum table thoroughly together with Hundegger.”

With regards to the latter, Kübler initially had his doubts because of the lack of experience with the new technology. But by now, the panel handling by means of the vacuum table runs smoothly, concludes the managing director.



The air-cooled high-performance spindle provides the necessary chipping performance

The PBA-Industry was developed by Hundegger specifically for the requirements of cross-laminated timber producers

