

# Flexible high-performance system solutions for CLT production machines

## One-stop turnkey systems

The demand for CLT production machines is enormous, not only on the established markets in Central Europe but in the whole world. The initial demand for standard products has become a demand for flexible and high-performance solutions which are suitable for small lot sizes as well. Weinig addressed this problem and has been able to complete the first orders of turnkey systems in the meantime.

According to the Weinig Group of Tauberbischofsheim/DE, the capacity of the CLT machines it sold ranges from 30,000 to 150,000 m<sup>3</sup> a year. These orders are not only intended for the Central European market. Projects could be carried out even in the most remote areas of Oceania. With all machines, the solution which Weinig promoted from the

very beginning, i.e. to achieve maximum machine availability by means of joint-glued single-layer panels, caught on.

With its variety of machines in every performance class, Weinig offers the basis for customer-friendly, flexible, high performance solutions which can be further developed in the future. The superordinate "Weinig Control Suite" control system, which was developed in-house, completes the product and service range.

### First the scanner sorting

Starting with the destacking of the rough-sawn and dried boards by means of a vacuum or tilt-destacking technology, customers have many possibilities. Weinig Group's Luxscan offers various automated scanner solutions to optimize CLT production. This way, requirements can be met at every level. The first question is whether the material has already been pre-sorted or not, since a scanner without certification is enough in many cases.

If the material is pre-sorted, a scanner of the middle performance class, such as EasyScan, can be used. In cross-feed this machine can serve as a presorting system. The scanners can also be lined up or used in combination with other scanners.

For lower and medium performance levels, the EScan series is the best choice. These scanners are certified for many types of wood and growing regions as defined in the norm EN 14081 and can also be combined with an EasyScan.

For a higher performance and/or more demanding requirements, a CombiScan Sense scanner with or without an X-ray sensor is the better choice. With the optimization program which is part of the scanner, quality classes can be defined and programmed as desired.

For the certified production of CLT and other structural products, further solutions are possible. When it comes to Luxscan, for example, the company is convinced that especially in the higher strength classes, yield can be raised by certifying the X-ray. A marking station completes the production. This station is able to make cutting marks on the wood and quality marks on the sorted boards.

### Clean workpieces through planing

In order to further improve scanning results and to minimize input tolerances of all downstream processes, it is sensible to smooth boards through pre-planing, thereby giving



Weinig Group's Luxscan offers different automated scanner solutions



A planing machine, such as this Weinig Hydromat 4300, is used both for pre-planing and for planing the laminations

the scanner and all following machines the ideal basis. In this case, the Weinig Hydromat 4000, a very powerful machine with feed rates of up to 300 meters per minute, is the best choice. According to Weinig, the Hydromat 4000 is perfectly suitable both for pre-planing within quality sorting and for the planing of laminations. The Hydromat is equipped with a heavy grey cast iron machine frame, a robust feed system with column guide and a strong four-roller feeder, as well as with heavy pressure elements for safely guiding the workpieces. Together with a high-performance ServoFeeder, it is an optimized and coordinated package.

The ServoFeeder ensures a continuous feed of the planing machine, either stack on stack or with a gap between the workpieces (during a floating operation).

A highlight is the newly developed and patented Weinig Wood Saving System, which allows for an optimal chip removal and thus for a flat surface. In short: as much as necessary and as little as possible. The pressure on the workpiece is the pressure difference between the feed and table rollers, which ensures a careful transport of the parts and helps to avoid cracks in the wood. In combination with vertical floating spindles, the Wood Saving System guarantees a high timber yield.

### High-performance cross-cutting

For the cutting-out of defects – which the Luxscan scanner recognized and defined before – for the following finger jointing machine(s) as well as for the cross-cutting of the laminations for the crosswise layers of finger-jointed multiple lengths, the Opti-Cut 450 Quantum cutting machine by Weinig Dimter is best suited.

Depending on the performance requirement and the version of the solution requested by the customer, one to three cross-cutting lines are used for one CLT production, which can be operated with one or up to three separate feed systems.

### An addition to the established finger-jointing line

The cut pieces are then fed to the downstream finger-jointing machine. The high-performance and efficient finger-jointing systems manufactured by Weinig Grecon for the production of finger-jointed elements for cross-laminated timber offer the ideal solution for every requirement and situation. With the Power Joint series, Weinig Grecon offers an internationally established technology in the construction sector. Its advantages include non-contact adhesive application and excellent finger-joint quality. Now, the leading expert for finger-jointing machines upped the ante in every performance class.

The previous PowerJoint 15 is complemented by a new top version, the PowerJoint 18 thanks to which 18 cycles per minute are possible. As it is often the case, a customer requirement was the starting point of its development. Weinig Grecon fulfilled the requirements defined by the specialist for glued-laminated timber and cross-laminated timber not only in terms of speed, but also went one step further in terms of technology. A special tandem clamping station and the feed-in line ensure the best positioning of the timber and

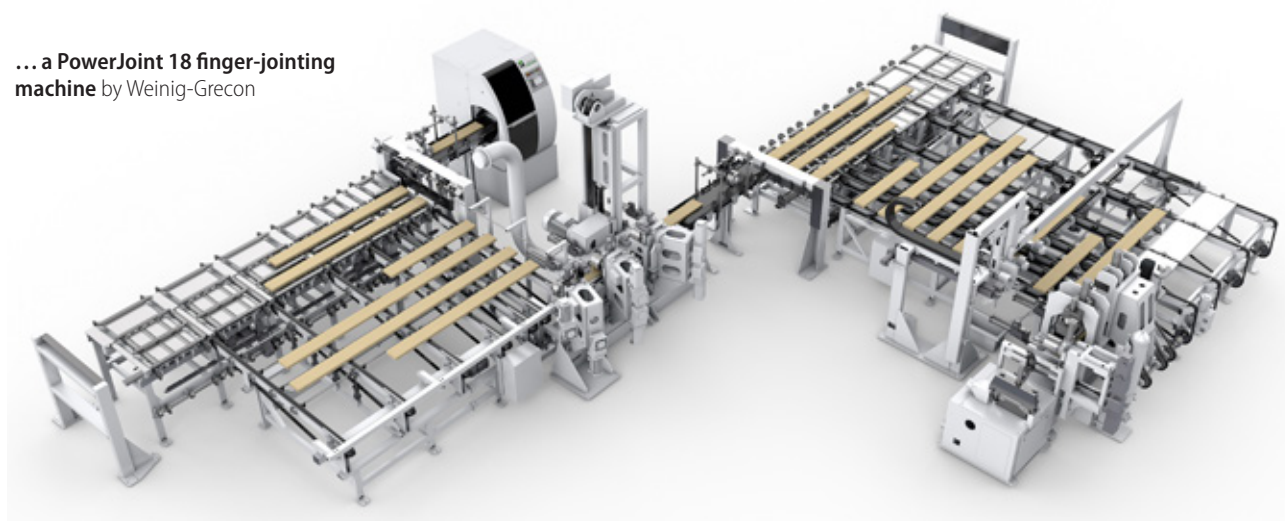
facilitate a high cycle performance. Together with the automatic feeding and emptying of the system, order picking is easier. When a higher performance is required, several PowerJoint 18 systems can be arranged parallel to each other and, in combination with separate feeders, they offer the highest level of flexibility and thus also form the basis for a highly flexible CLT production line.

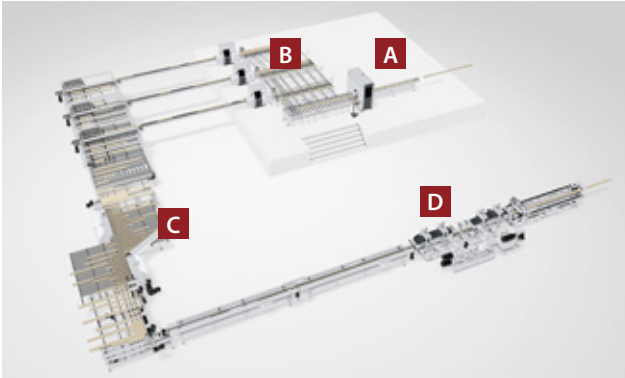
For “highest performance with limited flexibility” cases, Weinig Grecon has another newly developed solution in its portfolio: the VS series. VS stands for “vertical shaper”, i.e. the laminations are aligned vertically, clamped, milled and glued on four sides, before the machine turns the workpieces by 90 degrees and then presses them. Depending on the equipment version, the VS creates up to 150 pieces per minute. For example, versions with up to three saws and the corresponding feed are available. There is also a through-feed press, which is adapted to the performance and reaches up to 180 running meters per minute. On the output side of the press, a flying cross-cut saw cuts the endless finger-jointed elements to the desired length without loss of time. For curing, the finger-jointed elements for the longitudinal and



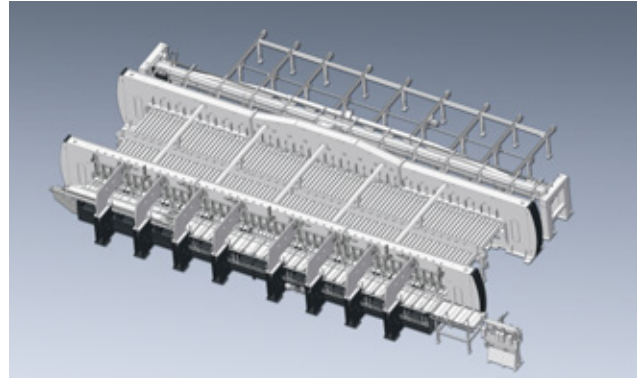
Weinig Dimter's high-performance cross-cut machines, like the OptiCut 450 Quantum, cut out defects. Then, the workpieces enter ...

### ... a PowerJoint 18 finger-jointing machine by Weinig-Grecon





**Schematic representation** of a Weinig system with a scanner (A), cross-cut saws (B) and VS finger-jointing machines (C) complete with a press (D)



**For the gluing of panels**, the ProfiPress C is used, which has been part of the company's product range for 40 years

crosswise layers are brought into the downstream multi-level storage. After that, the laminations are taken out as needed and fed into the lamination planing machine. Usually, a Weinig Hydromat of the 4000 Series with a floating spindle, which smoothens the laminations, is used for this process. Then, the planned laminations either enter a cross-cut line where the laminations for the crosswise layers are produced and are then fed into the gluing machine for crosswise layers, or they are directly passed on to the gluing machine for longitudinal layers.

The ProfiPress C-series, also known as "DFU", is used for the gluing of panels. This series has been part of Weinig's product range for more than 40 years. It is used worldwide and is always one step ahead. The ProfiPress C is characterized by a high performance and an equally high gluing quality. In CLT production, it is used to glue the individual CLT layers – both longitudinal and crosswise layers.

Depending on requirements, the use of PVAc, EPI, PUR or hotmelt adhesives is possible.

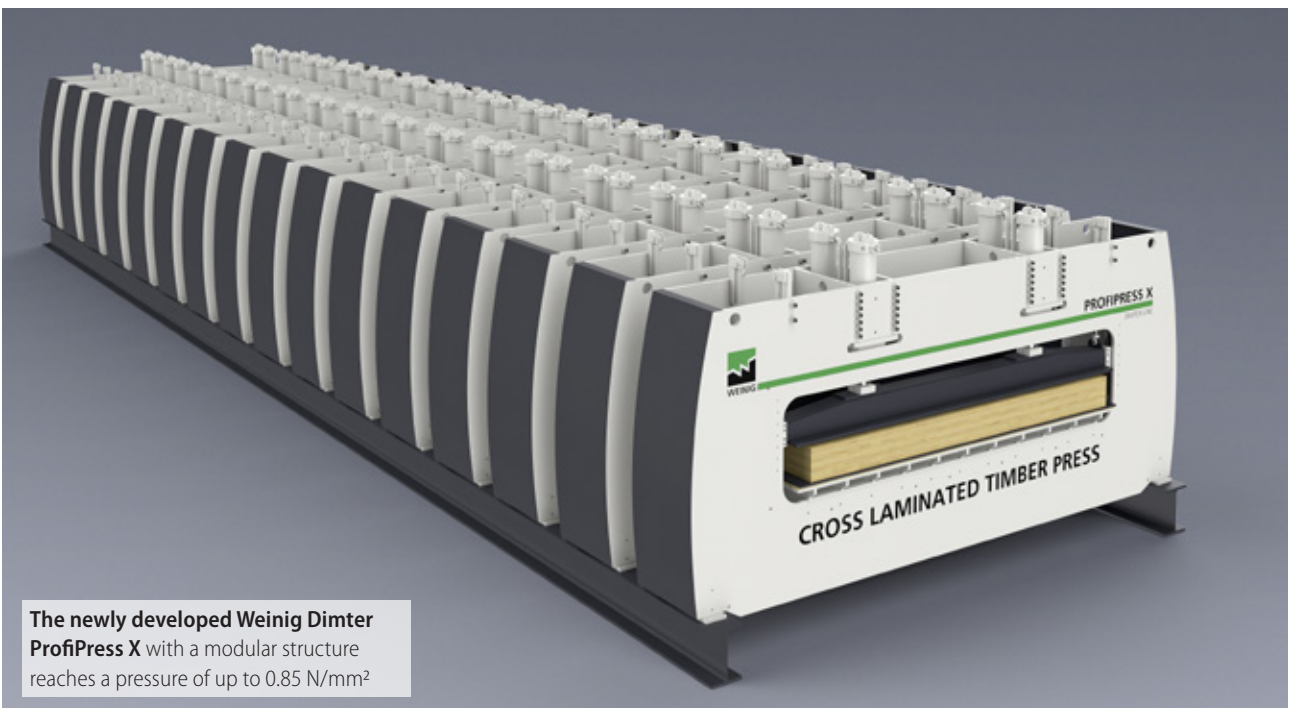
The single-layer panels produced with the joint-gluing machines are put in a temporary storage facility tailored to each customer. A subsequent unloading system takes the individual layers of varying thickness and quality, which are required for walls or ceilings, out from the storage and aligns them. The vacuum laying gantry then prepares the dry stack for pressing. In combination with the fully automatic surface gluing, the stack is assembled to form a finished "press cake" for the fully automatic surface gluing.

**A CLT press as well**

In this process, Weinig Dimter's newly developed and already sold multilayer press for CLT elements, the ProfiPress X, comes into play. The ProfiPress X has a modular design in the longitudinal direction and can be adapted to a final length defined by the customer.

Every one of these individual segments has two continuous, hydraulic pressure elements from above. As a result, independently controllable pressure elements with a length grid of 500 mm are available.

The pressing force from above is about 300 t per segment, the specific applied pressure is 0.85 N/mm<sup>2</sup> at full occupancy. With the ProfiPress X, CLT elements with widths from 2000 to 3600 mm and thicknesses from 60 to 400 mm can be produced. Of course, special dimensions are possible after adjustments. In addition, in one pressing cycle the press can be filled with wall elements of varying lengths placed on top of each other (stepped structure) as well as one after the other. Other than full-surface CLT elements, the ProfiPress X can also be used to press CLT elements with cut-outs for windows and doors thanks to the separately controllable pressure elements, which additionally reduces material usage and production costs.



**The newly developed Weinig Dimter ProfiPress X** with a modular structure reaches a pressure of up to 0.85 N/mm<sup>2</sup>

After that, the finished CLT press cake is stored and/or fed online into the subsequent finishing.

### Superordinate controlling solution

In order to make the best possible use of flexibility and efficiency and to take production orders into account, Weinig offers a superordinate controlling and monitoring solution, the Weinig Control Suite. It represents a central interface between the individual production machines and the customer's ERP system. Thanks to the central control, this solution facilitates an optimized production in terms of personnel. In addition to the visualization of the entire system, the system is automatically operated, the current status of the production machines is monitored and reported, and the orders supplied by the ERP software are managed and assigned in a timely manner. In general, every order and its status can be tracked and monitored online. This forms the basis for an easy lot size 1 or batch production. Of course, third-party products can be integrated into the system and displayed with it.

From the data gathered during production, the user can create an evaluation (e.g. running meter, cubic meter, set-up time,



The machine supplier offers also a control system, the Weinig Control Suite

production time) and representation in standardized form, related to the order, shift and/or day, as well as an evaluation of important key figures (BDE / MDE). The operation and visualization are carried out on a central operating station with a large-format touch-

screen and the standardized Weinig user interface. All of Weinig's machines and system components mentioned and described above form the basis for a customer-oriented, flexible, efficient and turnkey CLT production. ●

# MEHR EFFIZIENZ ODER MEHR FLEXIBILITÄT? BEIDES.

## THINK WEINIG

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Der erste Schritt nach vorn: [think.weinig.com](http://think.weinig.com)

Live erleben bei WEINIG Grecon, Alfeld (Leine)  
**WEINIG CLT Tage || 4. und 5. November 2019**

