



**FLEXISTACK FOR CONSTRUCTION TIMBER,
ROOF TRUSSES AND WALLS**
AUTOMATIC SORTING AND STACKING OF
INDIVIDUAL CUSTOMER ORDERS

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AUTOMATIC SORTING AND STACKING OF INDIVIDUAL CUSTOMER ORDERS

In order to create a higher grade of automatization and constant material flow the FLEXISTACK system provides a handling technology for automatic sorting and stacking of construction timber, roof trusses or wall components as ready packages for the next processing step or ready for dispatch.

Our concept allows an increased wood utilization of raw material during the joinery process in order to minimize the waste material. At the same time, it solves the logistic problem created by the large number of individual parts with varying cross-sections. Instead of time-consuming manual sorting, handling and temporary storage, the stacking is carried out completely automatically thanks to a gantry robot. That way, it reduces physical load when handling heavy construction timber enabling to generate significant cost-saving in the logistics.

Tasks

Roof constructions, walls etc. are usually planned today with CAD and with automatic technology for sawing the logs into squares and fully processed by CNC-controlled joinery machines provided with the necessary drilling, cutting and notching works. To reach a material-saving cut, several so-called constructional timber lists are combined and processed together. Raw material with the same cross-section is structured by means of optimal nesting of the required construction parts to ensure minimal waste and possibly no remaining pieces.

However, this optimization of material leads to a very large diversity of construction parts after the process of joinery. The individual construction parts must be assigned to the customer orders being proceeded at

the same time, tightly stacked to ready packages and safe for transport. Until now, the selection and stacking of sawn timber is carried out in a manual way, by hand, using manually operated lifting devices for support on heavy pieces. Accordingly this process is time- and space-consuming and error-prone. As suitable automated logistic concepts were not available, the Möhringer specialists designed and implemented the new FLEXISTACK system.

Technology aims

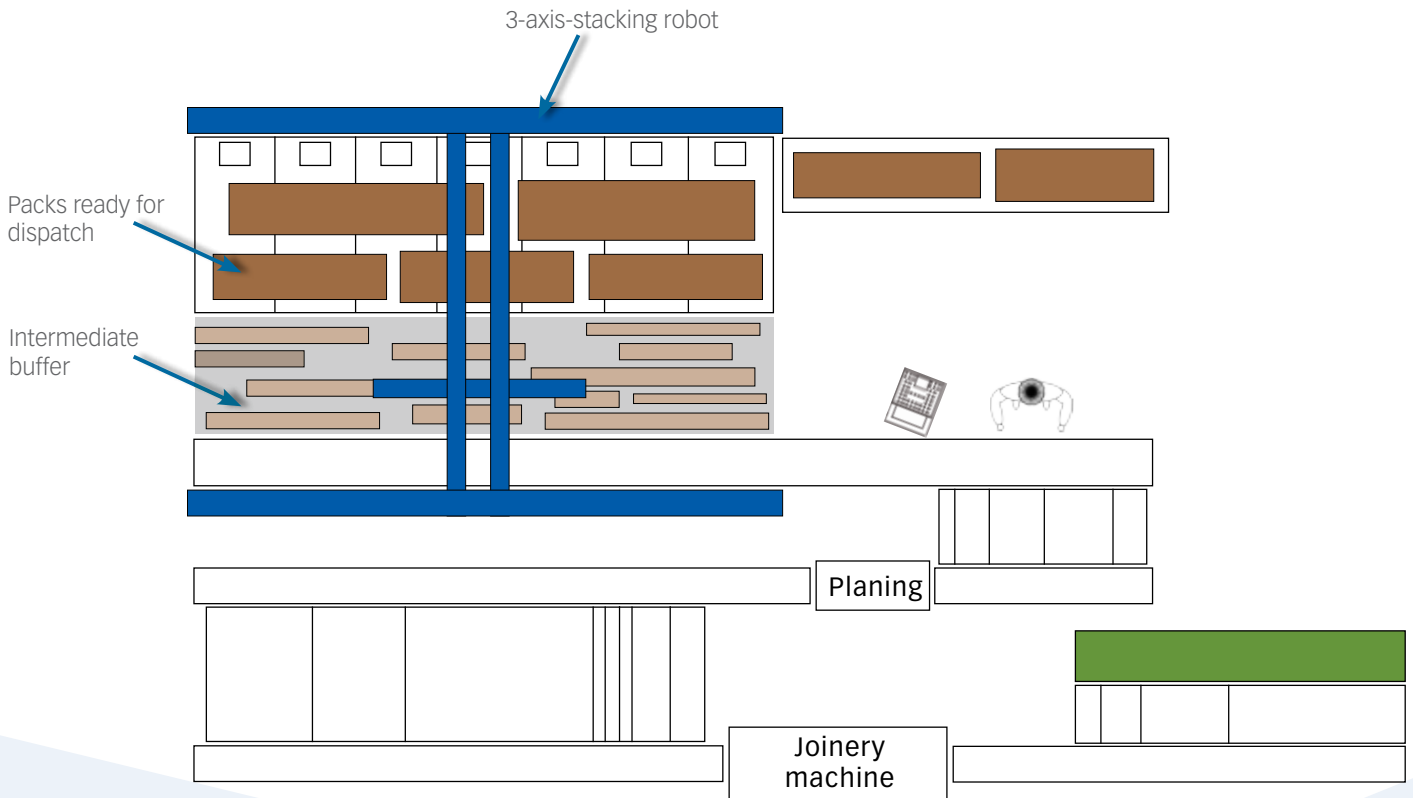
The objective for designing of our FLEXISTACK was the development of a technical solution to sort and stack sawn timber completely automatically. This automatic handling should effect considerable cost and material saving at the sawing process.



Stacking of timber for roof trusses

After approbation of the stack proposal during work preparation, the software generates a priority list for the joinery saw system. The priority list decides which cross sections must be produced in which order to ensure as little as possible cross section changes and to maximise the yield.

This concept enables a mixed working of the stacking robot either on-line and as well out of a buffer area. Timber pieces that directly suit the stack according to the assembly order are taken over immediately after sawing and transferred to the respective package. Pieces which are needed later are placed by the robot in an intermediate buffer. By this way, the joinery machine can combine similar cross sections of different customer orders and minimise wood waste. The robot provides automatic buffering of timber pieces and stacks them on the corresponding stack when the time is right.



Example layout for the installation of the stacking robot

References:

The FLEXISTACK is a strong instrument for material handling which is used in many different kinds of applications. It is used in wet and dry mills, for single and multiple products, for loading and unloading of joinery machines, for stacking and destacking etc. We invite you to see our high-performance automation concept at one of our customers.



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