

xSystem Natural Wood Shaped to Perfection



Hi-tech and state-of-the-art process engineering have for a long time been used in the wood industry. The production of parquet flooring, for example, requires a great deal of experience and know-how if perfect results are to be achieved. Four Moeller text display HMI-PLCs are used to control a flexible system for producing semi-finished parquet products. Using XI/ON, eight servo axes and CANopen, the parquet manufacturer can now combine different networked sections of the system to suit actual requirements.



THE COMPANY

Bauwerk Parkett AG is based in St. Margrethen, Switzerland, and belongs to Nybron Flooring International, the largest parquet manufacturers in Europe. Over fifty years of experience, combined with know-how in the latest building and application technology, provide the basis for the development and production of Bauwerk's modern finished parquet flooring. Apart from project developments, R & D and consulting for application technology, the range of products and services also includes training courses and exhibitions.

The TADO 3 system at Bauwerk Parkett AG, Switzerland produces semi-finished parquet products. It consists of several system sections that are all networked together. For example, system sections handle the cutting of parquet blocks from spruce and pine planks as well as sorting, separating and making them into complete batches. The covering, which later becomes the visible layer, is separated from a magazine and bonded. It is this bonding of the covering layer that has to be visually monitored. The covering layer and blocks are finally joined together, arranged into one unit and then pressed.

As Bauwerk places particular importance on quality assurance, they monitor, for example, the time taken for every covering layer from the bonding machine to the press, and remove them if the set time is exceeded.

The user-friendliness of the control system is another important requirement. Operator control should be as easy as possible during operation and service. Bauwerk also required an open, flexible communication system that provides flexibility for further device integration.

Combining system sections flexibly

Four CPUs of the XC100 series are used for the flexible and freely combinable control of system sections. These form a CANopen network together with two local MI4 visualization systems, XI/ON remote I/Os and eight servo controllers. All specific product parameters can be entered centrally via a text display HMI-PLC – a combination of text display and XC100. Its display and also those of the two MI4s ensure a fast response in the event of system malfunctions.

The text display of the HMI-PLC can be programmed without any additional visualization software required: PLC and HMI

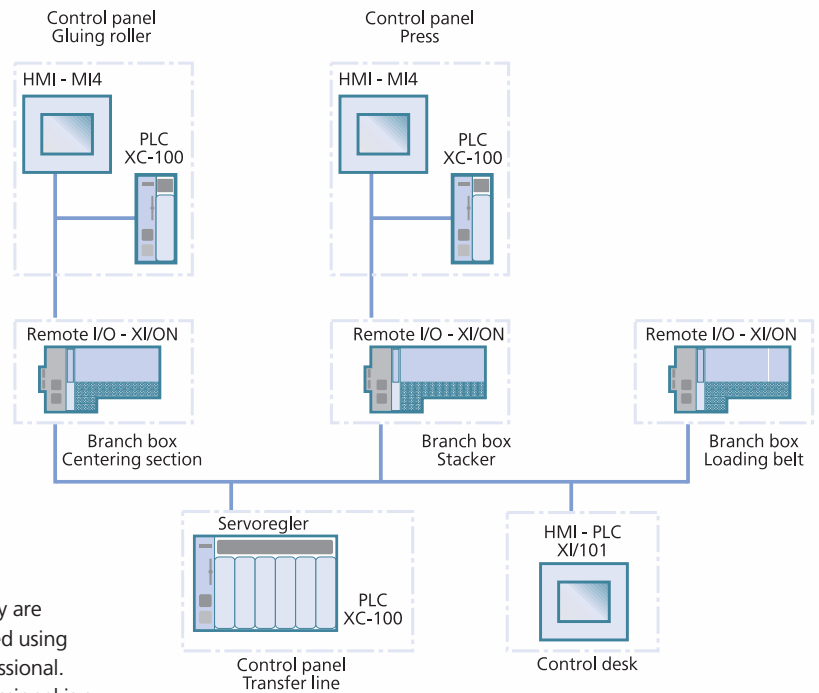
functionality are programmed using XSoft-Professional. XSoft-Professional is a programming system that is based on the CoDeSys 3S software in compliance with the international IEC 61131-3 standard. Benefit for the customer: A single tool keeps development times for both functions to a minimum and simplifies commissioning and maintenance.

The system control was largely programmed in instruction list, whilst the HMI-PLC and various monitoring functions were programmed in structured text. The visualization application can be created simply, whilst program sections can be tested before or during commissioning.

The inexpensive PLC of the XC100 series enables the entire system to be optimally divided into several autonomous function modules. Its scalability, modularity and integrated CANopen interface combine to form a both technically and economically mature solution.

Flexible network structure

Bauwerk Parkett AG also uses the XI/ON remote I/O system – one of the fastest CANopen I/O systems on the market. Even high-speed processes can be logged without any additional installation requirements for "special signals", and the seamless remote concept could be implemented without any restriction. Additional customer benefit of XI/ON: All XI/ON modules can be hot swapped during operation, and the removal of an electronic unit does not cause any interference in the other electronic modules. This is a clear advantage on the Bauwerk TADO 3 system where the overall operation was divided into different function modules. The entire system does not therefore have to be shut down when one section is maintained.



This increases system availability and reduces operating costs.

CANopen is primarily used for networking electrical and hydraulic drives, programmable controller systems, I/O systems and sensors. It has enjoyed a well-established reputation in networks for many years and has consequently been the chosen bus system of many device manufacturers. It allows users to make the optimum device selection for their requirements at an outstanding price/performance ratio.

CONCLUSION

Bauwerk Parkett AG chose Moeller's XSystem since XSystem components can be networked flexibly in open CANopen structures and the devices can be combined with those of any other manufacturer. The system is divided into several units, and different system sections are combined. The Moeller HMI-PLCs enable commissioning to be carried out quickly. Communication between the CPUs runs problem-free using network variables and the same applies to communication from the master to the servo axes, the XI/ON stations and the text displays.

