

RS-BoardScannerQ 2.5

RS-BoardScannerQ is a system for automatic inspection, grading and cut optimization of boards in a green or dry sorter or planer. The system will detect all defects and geometrical errors and perform a cut and quality optimization.

The optimization result will be transmitted to the automation system, which will control the cutting and sorting to a bin. Also, the system includes traditional grading functions such as bin status control, package label management, production reporting etc.

General

The system is designed for continuous production where inspection and quality assessment is performed followed by a cut optimization and a grading decision. Various dimensions and species are supported. The aim is to produce the highest possible value based on the set of rules defined in the system.

The system has three main functions:

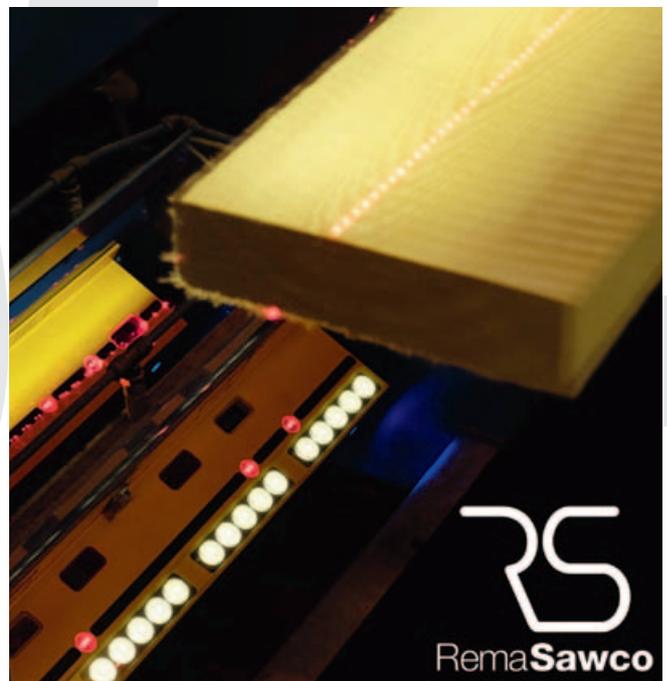
- Defect detection
- Board optimization (cut positioning and grading)
- Transferring the optimization decision to the control system.

The system has been a success with customers. Since the first deliveries, the system has been further developed. Improvements include a shorter commissioning time, a comprehensive standard rule set, added simulation options to name a few. Development continues and in co-operation with our customers.

Compact and in Modules

The measurements are performed with the help of camera sensors mounted both above and below the conveyor and in a compact unit. The cameras are mounted at a certain angle, which makes it unnecessary to flip the boards over. A cleverly constructed conveyor will enable the cameras to see the whole board on all sides without obstruction from chains etc.

Thanks to its compactness, the unit can easily be fit into your existing facility without the need for any major re-designs. A modular system means that you can start by purchasing units for dimensional measurement and later add the modules required for quality inspection and grading without changing the hardware.



Camera Techniques

The key to successfully detecting defects is achieved by combining tracheid and vision techniques. The tracheid technique makes it possible to discover changes in the wood fibers. Together with the vision technique we can find defects, which are otherwise hard to detect. Defects such as different type of knots, rot, blue stain etc are easily identified. Dirt stains like footprints or oil slicks can be pinpointed as stains and not be mistaken for other defects.

LED lights are built into the camera units and are only lit up when needed, which ensures a long life. Laser triangulation is used to expose the shape of the board, which means that both dimensional and geometrical errors are revealed, e.g. cupping, board spring, edge curve etc.



The camera units are mounted close to the boards and conveyor, which results in higher resolution and decreases the effect of board vibrations.

User Friendly

The application has a simple and comprehensible structure based on valid sorting rules. A graphical interface including animations has been used to a large extent and developed with the latest programming tools. Multiple screens are supported and the application can be installed anywhere in a network.



Integration

The system is fully integrated with board edgers. Data transfers of board and package data to administrative systems are built-in. These data transfers will update inventory and invoicing systems in real time.

Service Friendly



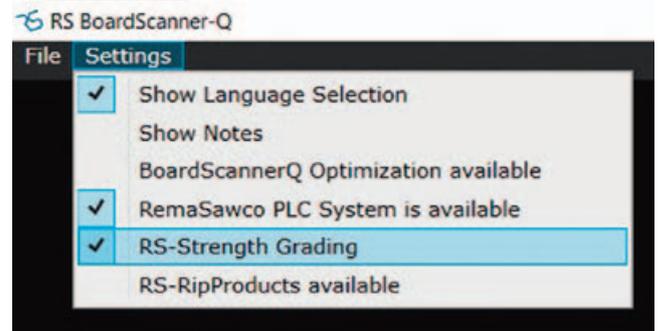
The measurement/camera units are easily accessible and can be replaced quickly according to the "plug-and-play" principle.

Simulation

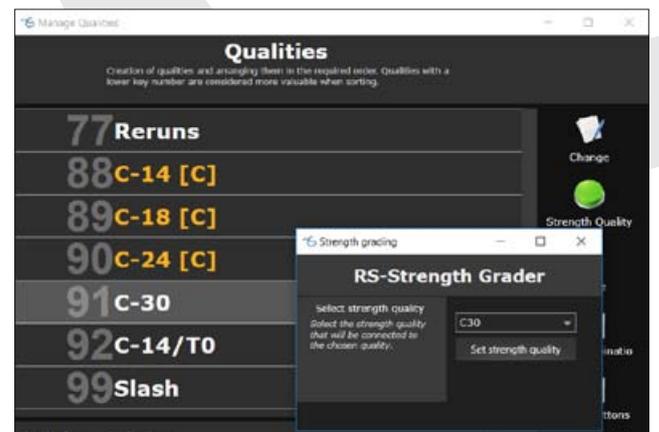
Simulation can be performed on already finished production runs in order to compare the outcome and result vs. different rule sets. In addition, live simulation can be performed using evaluation products, which then provides a theoretical result for each board, which can be followed up for the entire production run.

Strength Classification – RS-StrengthGrader

A complete function for touchless strength classification can be installed. It's completely integrated into RS-BoardScannerQ and is added like a "plug-in". The system is certified by SP (Technical Research Institute of Sweden) and by NTI (Norwegian Institute of Wood Technology). The certificates comprise green and dry wood for constructional use and for glulam components.



RS-StrengthGrader activation



Connecting strength grade class to quality.

Technical Facts

Maximum speed	200 pieces/minute
Conveyor split [normally]	600 mm
Maximum optimization time	1.5 seconds after measurement
Max width	No limitations
Min/max thickness	As required
Length	As required
Species	Pine and spruce
Measurement accuracy	
Width	+/-1 mm
Thickness	+/-0,5 mm
Length	+/-10 mm