

MPM ENGINEERING LTD.

RESEARCH ENGINEERING SALES

Log Sort Optimizer

MPM's *Log Sort Optimizer* finds the optimal bin solution for a log based on the defined downstream machines, grading, and board products.

To do this, the *Log Sort Optimizer* incorporates five key elements: image analysis, automatic grading, external inputs (e.g. X-Ray), product definition, and sawmill machinery modeling.

Image Analysis

The detection and application of bark, knots, and other surface features is used in the processing and optimization routines. Bark thickness and volume can not only be reported on, but actually removed from the log's surface in order to only optimize for products in the wood fiber. Areas of the surface where bark has fallen off are determined and are not subject to any adjustment in the optimized image, unlike some systems that just apply a single bark reduction over the entire length of each log. In terms of knots, a prediction of the type of log can be determined (i.e. root, middle, or top) as well as a subset of the products being considered within the optimization.

Automatic Grading

The *Log Sort Optimizer* can analyze the log depending on different grading features detected. *Knots / Nodal Swells, Flare, Catface, Crook, Pith, and Fork* are just a few of the grading parameters that can be configured. Once one or more of these features are detected, a subset of products, patterns, or simply diameter/reject sort bins can be considered to separate grades of logs into different bins.

External Inputs

An interface is available for our optimization system to receive data from various external locations. This data can be used in conjunction with our internal optimization system, or can be just recorded in the databases for reporting purposes.

For example, an X-Ray system can indicate defects and features to the optimizer, which can then either reject the log based on that data or grade the log using a subset of products and patterns.

The log load entry system built into the MPM Log Sorting Optimizer is another example of an external input; however, this data is generally used for revenue scanning (i.e. calculating royalty payments to different log suppliers based on different volume calculation methods) and separating data in the databases for reporting purposes.

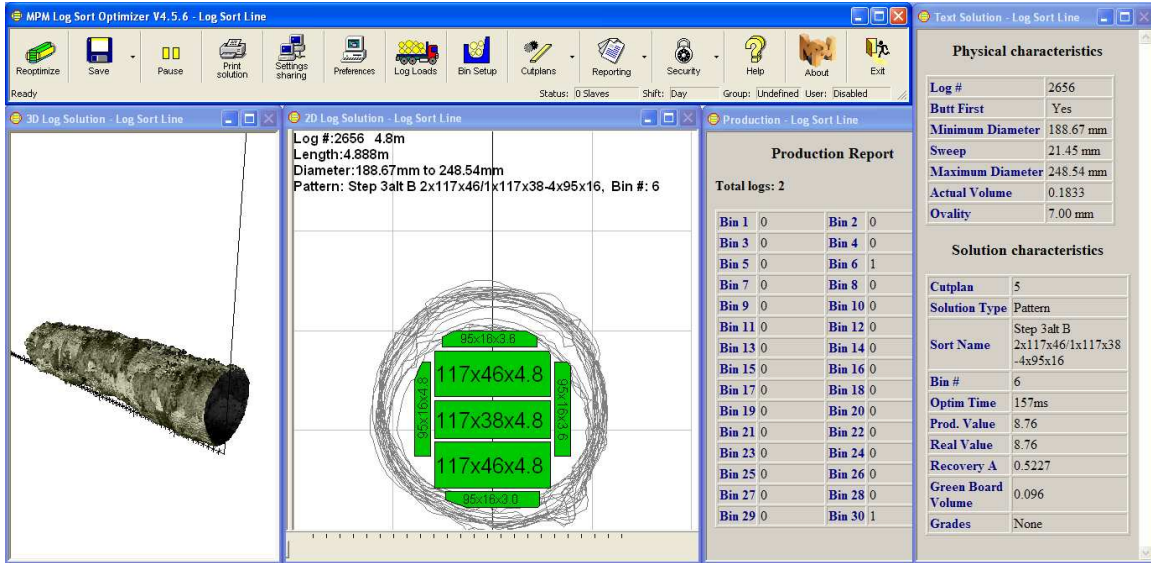
Product Definition

Full product definitions, organized into groups and grades, are used in the patterns and product fits for determining the best bin to sort the log into. Using settings such as *Wane, Length, and Value*, a multitude of situations can be optimized for.

Sawmill Machinery Modeling

MPM's optimization systems contain detailed machine models in order to closely represent the sawmill process – and the Log Sort Optimization system is no exception. Whether the sawline is straight or curve sawing, skewing, profiling, or has multiple center cant saw clusters, our machine model is manufacturer specific and configured to all limits defined by the customer and manufacturer's recommendations.

Key Features:



- Scanner type independent for customer flexibility.
- Simulations can be run off-line to evaluate different parameters and machinery configurations.
- Optimization can be based on price or volume while allowing product priority to attain specific production requirements.
- Optimizes using a variety of downstream machine types/brands and their specific features. (*Turners, Infeeds, Breakdowns, Gangs, etc.*)
- Optimizes for a product by considering features such as *Wane, Pith Location, Length, Location, etc.*
- Depending on the machines defined, curve sawing can be factored in during optimization.
- A variety of sorts can be used such as *Pattern Sort, Reject Sort, Diameter Sort, Length Sort, etc.*
- Log load tracking that can be used to track specific suppliers.
- Settings can be linked between multiple MPM systems for centralized setting configuration.
- A variety of graphical displays help the user to analyze a solution.
- Extensive and customizable production reports.



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