

Bandsaw Monitoring System Functions:

- Monitors, records and displays the sawblade cutting accuracy (mean and standard deviation) for each cut.
- Displays real-time traces of sawblade deviation.
- Displays a graph of the cutting accuracy as the shift progresses so changes in performance can be easily detected.
- Provides warning signals for the operator when the sawblade deviation exceeds the pre-set limits for maximum acceptable deviation.
- Monitors, records and displays feed speed, cut depth and guide wear.
- Provides graphical printouts of the cutting accuracy based on several factors such as within board, between board and total deviation.

Active Guide Functions

- Periodically adjusts the guide lead to minimize sawblade cutting bias and deviation.
- Indicates when sawblade condition is becoming critical so that it can be changed before too much off-size lumber is produced or serious damage occurs.
- Will improve target size, sawblade deviation, feed speeds, sawblade life and unscheduled down time due to damaged blades.
- Displays log/cant count and number of logs or cants until the next guide adjustment.
- Displays the total cutting accuracy (mean and deviation) for the shift, or since the blade was changed, and the cutting accuracy since the last guide adjustment.

Designed and developed by Forintek's
Wood Machining and Optimization Group



FORINTEK CANADA CORP. is a national wood products research and development institute, funded through a partnership arrangement with industry and governments. The members are directly involved in the planning and monitoring of Forintek's work program. Technology is developed and transferred through the partnership. The research program includes work in the following areas:

- Resource Assessment
- Advanced Lumber Manufacturing
- Advanced Composites Manufacturing
- Drying and Protection
- Building Systems
- Secondary Manufacturing

Facilities are located in:

Vancouver, British Columbia
(Corporate office & western laboratory)
Tel: (604) 224-3221


Sainte-Foy, Quebec
(eastern laboratory)
Tel: (418) 659-2647

Edmonton, Alberta
(regional office)
Tel: (780) 413-9031

Ottawa, Ontario
(Fire Research Group)
Tel: (613) 523-0288

for further information please
visit our website at:
www.forintek.ca

For a price quotation on the Forintek Active Guide
and Monitoring System please contact:
activeguide@van.forintek.ca



Bandsaw Active Guide and Monitoring Systems

Opportunities

- Increased fiber recovery
- Decreased target sizes
- Increased feed speeds
- Improved cutting accuracy
- Reduced saw blade deviation

Proven Technology

Results of mill trials have shown that the Forintek Active Guide and Monitoring system provides substantial improvement in cutting bias, sawing deviation and between board deviation. Blue Ridge Lumber in Alberta, the company responsible for installing the Active Guide prototype, reported that the system effectively improved their bandmill operations. In more than 18,000 cuts the mill monitored, a 20 per cent improvement in cutting bias, standard deviation and between board deviation was seen.



Computerized Evaluation

After a pre-determined number of cuts, a computer running Windows-based software evaluates the cutting bias of the blade and realigns the angle of the guide to remove the bias. In addition to controlling the guides, the software conducts an ongoing analysis of the blade performance and displays the cutting trace of the sawblade. As well as displaying the trace of each cut it provides cumulative cutting accuracy as the shift progresses. A complete record of blade performance information is maintained in the computer's data base. This includes times, blade identification, depth of cut, feed speeds, sawing deviation etc. any or all of which can be selected for graphical output.

Paying for itself

With an Active Guide system in place to automatically reposition the blade during operation, a mill can choose to keep a damaged blade working, so as not to disrupt production, until the next scheduled blade change.

So by improving sawblade cutting accuracy and compensating for damaged or incorrectly prepared blades, the Monitoring and Active Guide systems can pay for themselves very quickly. The end result of using these systems can be a recalculation of target sizes and a subsequent improvement in recovery.



Forintek's Bandmill Monitoring and Active Guide system will provide operators with:

- Reduced saw blade deviation
- Improved saw blade cutting accuracy
- Decreased target sizes
- Increased feed speeds
- Increased fiber recovery

Bandmill operators have long since recognized the importance of saw blade cutting accuracy for maximized lumber recovery. A number of factors, however, can work against them. Feed system and bandmill misalignment, blades damaged during the cutting process or errors in blade and tooth tip preparation mean operators are not recognizing full fiber recovery potential. With Forintek's Bandsaw Monitoring and Active Guide systems assisting with the cutting process, bandmill procedures will be optimized for efficiency, thereby eliminating excessive sawing variation in the long run.

Forintek's Bandsaw monitoring system uses a sensor under the top guide for reading the motion of the blade, and calculates the cut mean and deviation before storing the information to a database. For the Active Guide system, replacement guides have been developed so the angle of the guide can be adjusted by moving the trailing end of the guide block and holder, thus minimizing movement of the sawblade's leading edge. After a pre-determined number of cuts, a computer evaluates the cutting bias of the blade and realigns the angle of the guide to remove the bias. Tests have shown that realignment has no detrimental effect on the blades. The system was designed so it would be easy to retrofit to existing bandmill systems.

Forintek's bandsaw monitoring system records the cutting accuracy of the bandsaw and the Active Guides periodically adjust the guide alignment so as to minimize deviation. The systems dramatically reduce sawblade deviation so as to improve cutting accuracy.

