

**The VTI system
provides sawmills with the
following benefits:**

- Magnified tooth images for visual inspection of grinding defects
- Automatic measurements of important tooth geometry
- Quality control of the tooth grinding process
- Most accurate method available for checking saw grinding equipment
- Training tool for new saw filers
- Improved sawing accuracy and reduced downtime caused by problems with tooth grinding

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**

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 **VTI**
Video Tooth Inspector™

- *To inspect and measure circular saw teeth*
- *To reduce saw kerf and lumber target sizes*
- *To increase fibre recovery and potential profits*

Forintek's Video Tooth Inspector™ (VTI)

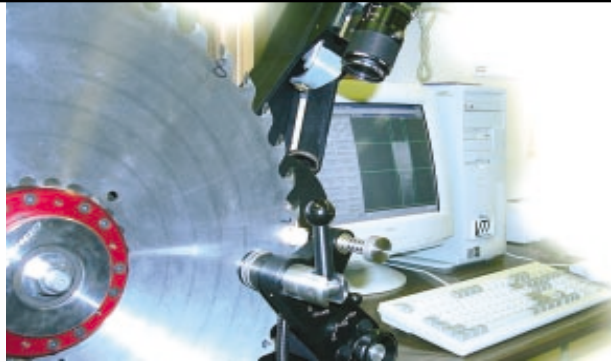
A new tool for the inspection and measurement of circular saw teeth

High fibre costs have led many sawmills to use narrow thin-kerf saws to maximize lumber recovery. These saws are very flexible, so sharp and accurately ground saw teeth are essential. Poorly ground saw teeth caused by faulty grinding equipment and procedures can easily lead to increased sawing variation, double arbor mismatch and excessive planer skip.

For thin saws, even small tooth grinding defects can significantly increase sawing variation. Research by Forintek has shown that a one-degree error in side clearance angles can cause sawing variation to more than double. This is unacceptable for mills with small lumber target sizes.

Industrial methods for monitoring saw tooth quality rely on both visual inspection and measurements. Visual inspection is normally done to check for defects like chipped teeth, while measurements are typically made using simple hand tools such as micrometers and dial indicators. Unfortunately, poor accuracy often results because small teeth are difficult to inspect visually and because hand tools are not able to accurately measure small errors in tooth geometry.

The VTI can help sawmills successfully implement thin kerf saws



Unique Technology

Forintek's VTI is a unique tool for inspecting and measuring circular saw teeth. The system uses a video camera with a high-magnification lens that focuses on the top, face or side of individual saw teeth. A large, magnified image of the tooth is displayed on a computer monitor. Vertical and horizontal lines can be set to help a saw filer inspect the tooth for grinding errors or defects. Images of the tooth can also be printed or saved in a computer file for later analysis.



Saw with curved tooth sides from "dubbing"

Automatic Measurements

The VTI's custom software program can also analyze the tooth image and automatically calculate key tooth dimensions such as kerf, side clearances, and radial or tangential angles. The results are displayed on a computer screen and are accurate to within 0.001 inch, or 0.2 degrees. Measurement reports can be printed or saved in a computer file for quality control purposes. The entire measurement process per saw typically takes less than 15 minutes once the system has been set up.



Using the VTI

The VTI is an invaluable tool for checking and adjusting expensive saw grinding equipment and for training new saw filers in correct grinding procedures. The VTI enables quality control of the saw grinding process. This can result in reduced sawing variation and less downtime caused by unscheduled saw changes.

Quality control of the grinding process involves setting standards and tolerances for important tooth dimensions.

Average and standard deviation values given in the VTI measurement reports can be used to ensure that these standards are being met. Ideally, every saw should be visually inspected and measured after retipping and grinding; however, random sampling can also be performed if time is limited.

The VTI gives saw filers the tool they need to maximize the performance of thin-kerf circular saws. For lumber companies, this means increased lumber recovery and greater potential profits.

**New
Secondary
Version now
Available**



A new version of the Video Tooth Inspector™ is now available to handle the unique requirements of the secondary lumber manufacturing industry.

Enhancements allow the Secondary VTI to measure:

- Blades as small as 7.125 inches in diameter
- Secondary tooth grinds
- Negative hook angles