Band and Circular Saw Tensioning

Gary Schajer

University of British Columbia
Vancouver, Canada

The Problem: Inaccurate sawcuts
What is Tensioning?

- Tensioning creates tensile stresses along the cutting edge and tightens the tooth line.
- Stabilizes saw to give straighter cuts.

Tensioning Stresses

- Tensioning puts stresses into the saw.
**Tensioning Stresses**

- Tensioning puts stresses into the saw

---

**Tensioning vs. Leveling**

- Tensioning creates symmetrical stresses
- Leveling creates skew-symmetrical stresses
Tensioning vs. Leveling 2

- Tensioning effect is produced
- Leveling effect is produced

Tensioning vs. Leveling 3

- Tensioning effect is produced
- Leveling effect is produced
Backcrown

- Rolling near back edge lengthens that edge and locally releases stress
- Shifts stress to front edge
- Tightens tooth line without increasing bandmill strain

Tensioning Measurement

- Light Gap Method
Tensioning Measurement

- Light Gap Method

Fit the saw plate to the tension gauge

Tension Gauge

- Fit the saw plate to the tension gauge
Cross-Curvature

- Some reverse cross-curvature occurs with no stresses because of cross-contraction

Tensioning Measurement

- Light Gap Method
Light Gap Measurements

Tire Lines
**Typical Rolling Sequence**

Diagram: Sandvik

**Local Adjustments**

- Loosen tight areas by rolling on them
- Tighten loose areas by rolling away from them
Automated Tensioning & Leveling

Summary

Saw Tensioning:

- Tightens tooth line and improves cutting accuracy
- Puts beneficial stresses into saw
- Skill and experience are required. Some work can be done automatically
Questions ?