



SAWING TECHNOLOGY UPDATE

No. 1

BROUGHT TO YOU BY CALIFORNIA SAW & KNIFE WORKS



AN IMPORTANT ADVANCE THAT EVERY SAW MILL CAN PUT TO WORK

In view of worldwide overcapacity, intense global competition and industry consolidation, what can you do to help assure your mill's continued success? You can maintain business as usual—and perhaps face an unwelcome future. Or, you can choose a forward-looking strategy to improve your capabilities and competitive stance.

Right now, saw mills can quickly and easily adopt a sawing approach that immediately begins to generate more value from the same raw material and equipment. Some mills have made this change and we share their results in this Update.

REDUCE SAWING INACCURACY — AND LOST REVENUE

It's clear that sawing inaccuracy causes planer skip and depresses lumber value. Most mills counter this problem with larger target sizes. Unfortunately, this has meant losing millions of board feet of lumber volume to planer shavings or lower grades.

Stainless steel saws have emerged as a smart, simple answer to the dilemma of sawing inaccuracy. In fact, they've become a key player in the survival strategies of saw mills for whom business as usual isn't good enough. Mill results prove it. *And now, finite element stiffness analysis shows us why stainless steel saws stay stiffer and cut straighter.*

Consider the metrics of sawing with stainless steel saws. Then put them to work in your mill.

EXCLUSIVE, NEW DATA ON STAINLESS STEEL SAWS

When a saw tooth cuts wood, heat is generated at the tooth tip. The heat then sets in motion the following process:

THESE TESTS AND CALCULATIONS ALL ADD UP TO ACTUAL, POSITIVE CHANGES IN MILL PERFORMANCE.

- It raises the temperature of the tooth.
- This higher temperature moves inward below the gullets.
- The warmer outer portion of the saw plate expands and produces compressive stresses that lower the plate's elastic stiffness.
- Reduced stiffness increases lateral deflection and produces less accurate sawing.

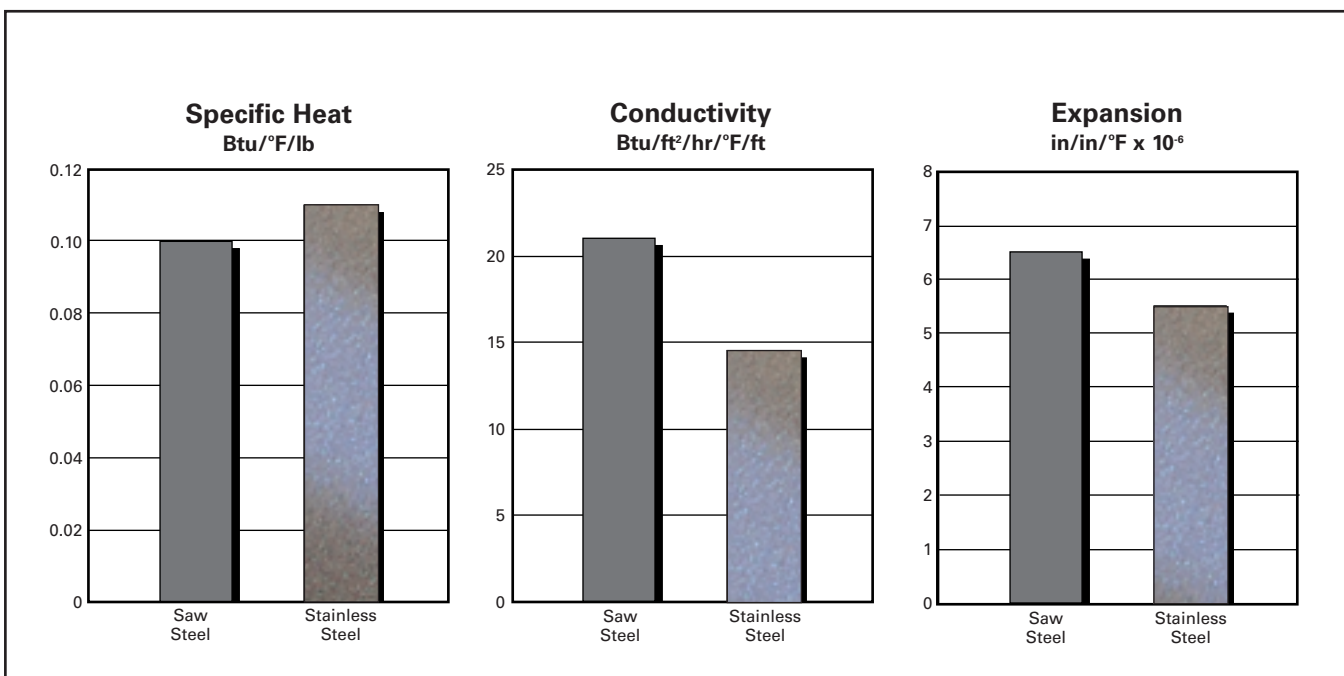
STAINLESS STEEL SAWS RESIST THE SPREAD OF HIGHER TEMPERATURES.

The data show that, compared to alloy steel, stainless steel requires more heat to raise its temperature by the same amount. It also transfers heat more slowly. And it expands less. The result? A stiffer saw under almost all cutting conditions.

Most importantly, a stiffer stainless steel blade cuts truer in the parts of a board where blade flexibility can affect accuracy the most:

- In the middle where, for instance, double arbor saws overlap and create an offset or step.
- Along the edge of the board furthest from the guide in single arbor machines, where thickness wedging arises.

THERMAL PROPERTIES: STAINLESS STEEL CAN TAKE THE HEAT



STAINLESS STEEL: STIFFER AND STRONGER

How much stiffer? About one-third more, compared to a 19" diameter X .085" thick alloy saw steel saw operating with a temperature difference of 35 degrees Fahrenheit between the bottom of the gullets and the eye.

Plus, the stainless steel saw is stronger. Stronger in real life than its Rc50 hardness

would indicate. That's because its sluggish deformation kinetics make it tougher to bend permanently at high speeds.

For you, that translates to fewer unscheduled saw changes and fewer bent saws cutting off-size lumber.

SOME RESULTS FROM MILLS THAT SWITCHED

WHETHER THEY MADE MAJOR CONVERSIONS OR ADJUSTMENTS ON A SMALLER SCALE, EACH MILL FOUND STAINLESS STEEL SAWS TO BE EXTREMELY BENEFICIAL.

Weyerhaeuser

Dallas, Oregon

After replacing chrome-plated alloy steel saws with stainless steel saws, the percentage of 8", 10" and 12" Douglas fir boards that achieved Select Dimension grade in a 12" double arbor shape sawing gang jumped from 12% to 17%. The stainless steel saws reduced measured average offset by 35%.

Carter Holt Harvey

Tokoroa, New Zealand

Cutting 5/4 and 6/4 radiata pine boards in a 13" D.A. Versagang, conventional saws with a .120" kerf were unable to cut at full depth within tolerance levels for more than two hours. However, stainless steel saws easily complete a five-hour run. And time lost to unscheduled saw changes has dropped from an average of 10 hours per week to 1 hour, producing a 10% increase in uptime.

Weyerhaeuser

Kamloops, British Columbia

Following months of testing to determine the rate of gullet wear and thickness loss, a 10" horizontal D.A. gang was converted to stainless steel saws in 2000. And then, in 2002, the mill focused tests on mechanical durability in rougher operating environments. As a result, they changed to stainless steel saws in a 10" vertical D.A. unit in a Chip-N-Saw line.

The mill based each change on the evident improvement in ease of maintenance, lower incidence of saw replacement and overall process reliability.

Mendocino Forest Products

Fort Bragg, California

The overall range of board thickness measurements was reduced by almost 40% when stainless steel saws replaced conventional saws in a 6" top arbor gang sawing Douglas fir studs.

Weyerhaeuser

Coburg, Oregon

Stainless steel saws reduced target size by .020" in a 12" D.A. shape sawing gang cutting small Douglas fir cants at high speeds.

BUSINESS IS TOUGH ENOUGH — DON'T LET YOUR SAWS MAKE THINGS HARDER

Make informed decisions. Measure and consider the results you get with conventional steel saws and stainless steel saws. That's made all the difference to mills who made the effort. For example, few mills actually measure and track their double

arbor offset, preferring to note top and bottom thicknesses only. We can show you how Weyerhaeuser's Dallas, Oregon mill uses a saw filer's side clearance gauge to collect this most important piece of information on double arbor sawing accuracy.

WHETHER OR NOT YOU DECIDE TO USE STAINLESS STEEL SAWS, INSIST ON GETTING THE WELL-RESEARCHED, RELIABLE DATA AND ASSISTANCE YOU NEED TO CHOOSE THE RIGHT PRODUCTS FOR YOUR MILL. LEARN TO RECOGNIZE HOLLOW PRODUCT CLAIMS THAT SIMPLY DON'T MAKE SENSE SO THAT EVERY DOLLAR YOU SPEND IS PUT TO THE BEST USE FOR YOUR OPERATION.

REMEMBER THE BENEFITS OF STAINLESS STEEL SAWS

With current industry challenges, the proven benefits of Cal Saw stainless steel saws are more important than ever.

- They're easier to maintain. That frees your filers to focus on other tasks.
- They're more durable and last longer than other saws. They resist bending, gullet wear and the increase in guide clearance that comes with thickness loss.
- They cut straighter, costing you less in downtime and low-grade lumber.
- Ultimately, you'll find that they have a lower cost of ownership.
- In addition, with Cal Saw, you receive ongoing, expert support for your sawing needs before and after your purchase. Our Total Saw Technology Package provides complete solutions for your blade, equipment and service concerns.

PLEASE CONTACT US TO DISCUSS YOUR MILL'S SAWING NEEDS OR TO REQUEST OUR IN-DEPTH REPORT COMPARING STAINLESS AND ALLOY STEELS IN CIRCULAR SAWS.

CALL 888-729-6533 OR EMAIL STAINLESS@CALSAW.COM.



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