

# PLYWOOD & ENGINEERED WOOD PRODUCTS MANUFACTURING WORKSHOP

September 28, 2016 – Timber Processing & Energy Expo, Portland OR

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**NEW DEVELOPMENTS IN  
VENEER PEELING LINES:  
AUTOMATED GREEN END**

# Overview

**Merritt and Meinan history**

**Plywood composition and lathe comparisons**

**Advantages of the Meinan lathe**

**The newest Meinan peeling line with automated green end**

# Merritt History

- Established in Lockport NY in 1851
- Installed veneer lathes worldwide
- Remained in the Merritt family until the mid 1960's
- Manufactures machinery today for sliced and rotary peeled hardwood veneer manufacturers
- U.S. Representative for Meinan



## Merritt Machinery



# Meinan History

- Founded in 1953 by Katsuji Hasegawa, an engineer formerly with the Taihei company
- Established as a research and development firm for veneer and plywood machinery
- Employee owned company, over 100 engineers, focused on innovation
- Over 130 U.S. patents, in addition to many Japan and worldwide patents

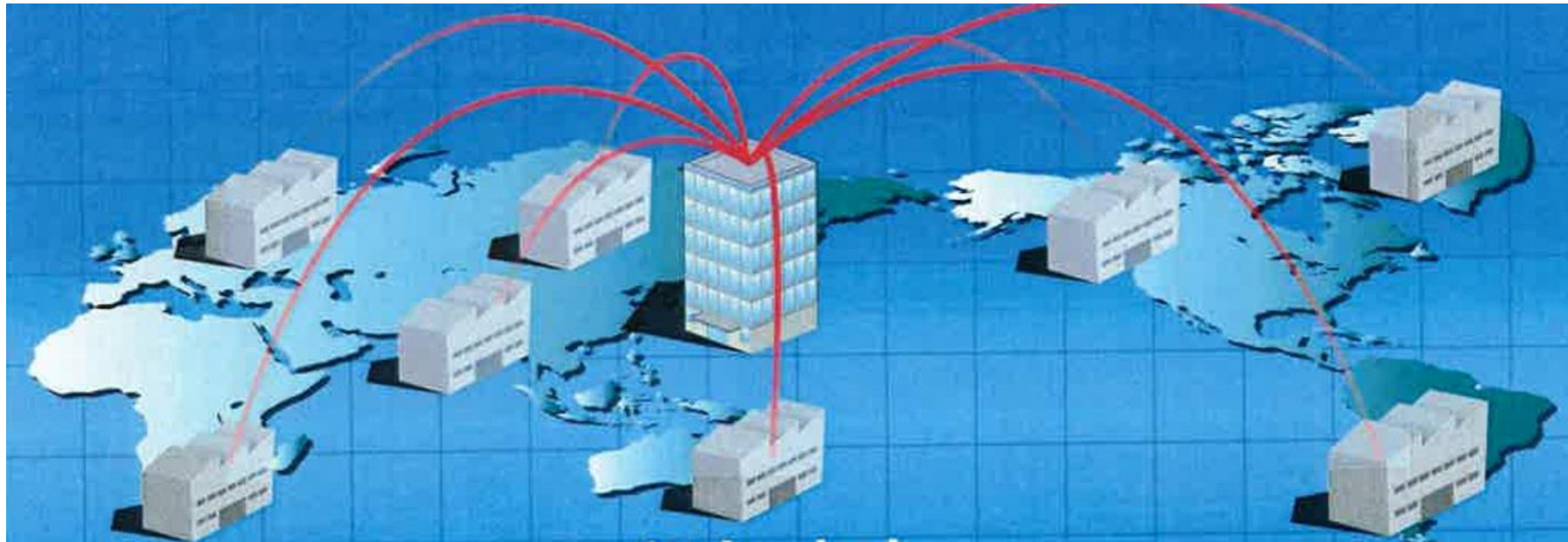


# Today Meinan lathes are all over the world

Over 400 lathes sold:

>175 Japan domestic market

>250 Export market, including 8 lines in N. America



# Meinan “firsts” related to plywood manufacturing

1950's - Developed the wide belt sander, including the first wide belt **wet** sander

1970's – Patented the first machine to join random dry veneer, a “composer”

1980's – Patented the first circumferential-drive lathe

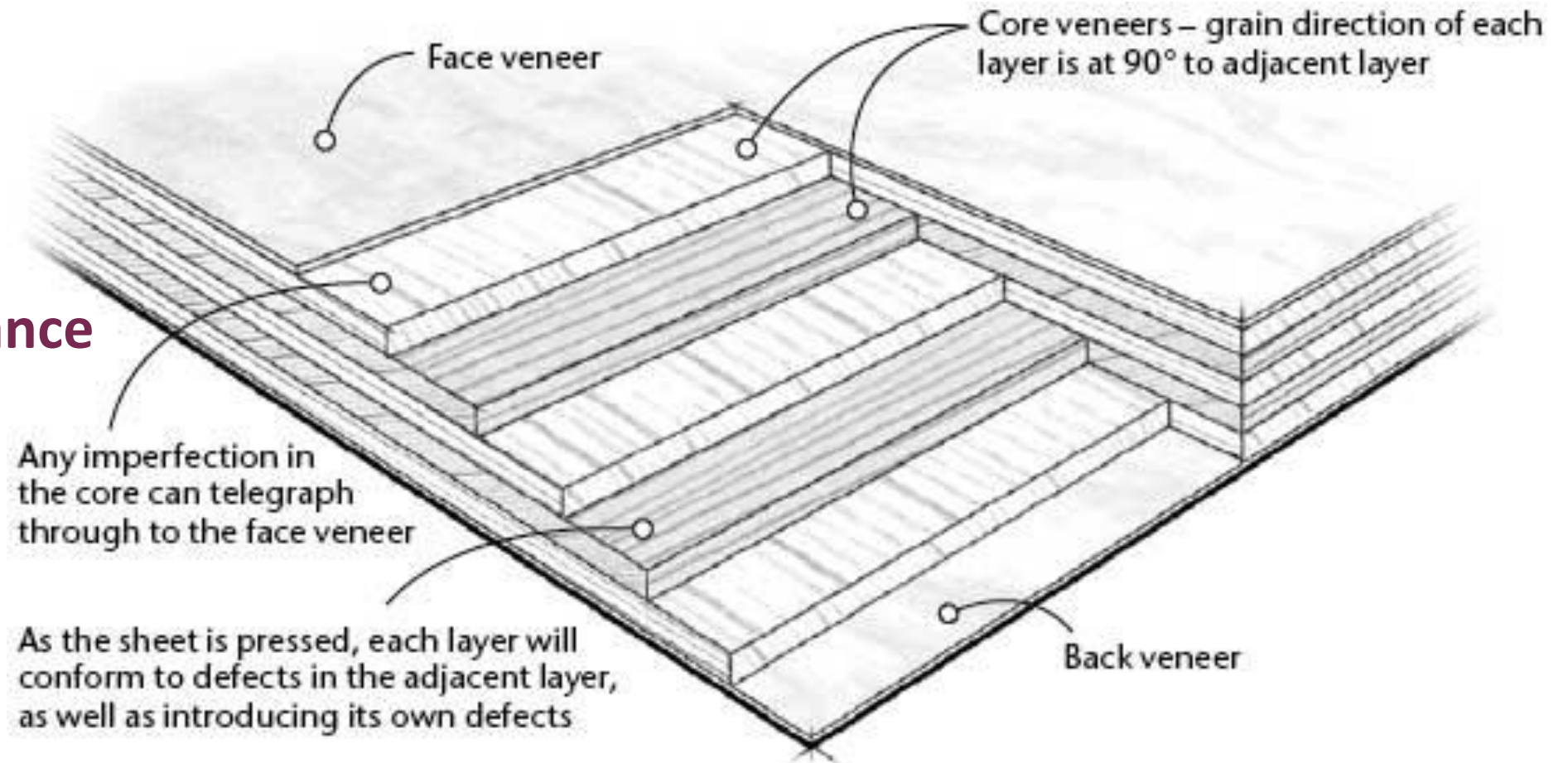
1990's – Patented the automatic knife changer

2000's – Patented the first green veneer composer

2010's – Patented 3-D vision scanning system for log charger

# Plywood composition

**Why is veneer quality and thickness tolerance important?**



# Lathe Comparison

The technology and process of peeling veneer on the Meinan lathe line is completely different than what is being done on conventional lathe lines.

## **The Meinan concept:**

**Recovery**

**Automation**

**Technology**

Manufacturers using Meinan peeling lines have reported substantial increases in recovery and improved veneer quality, giving their customers a competitive edge.



# Mechanical comparison

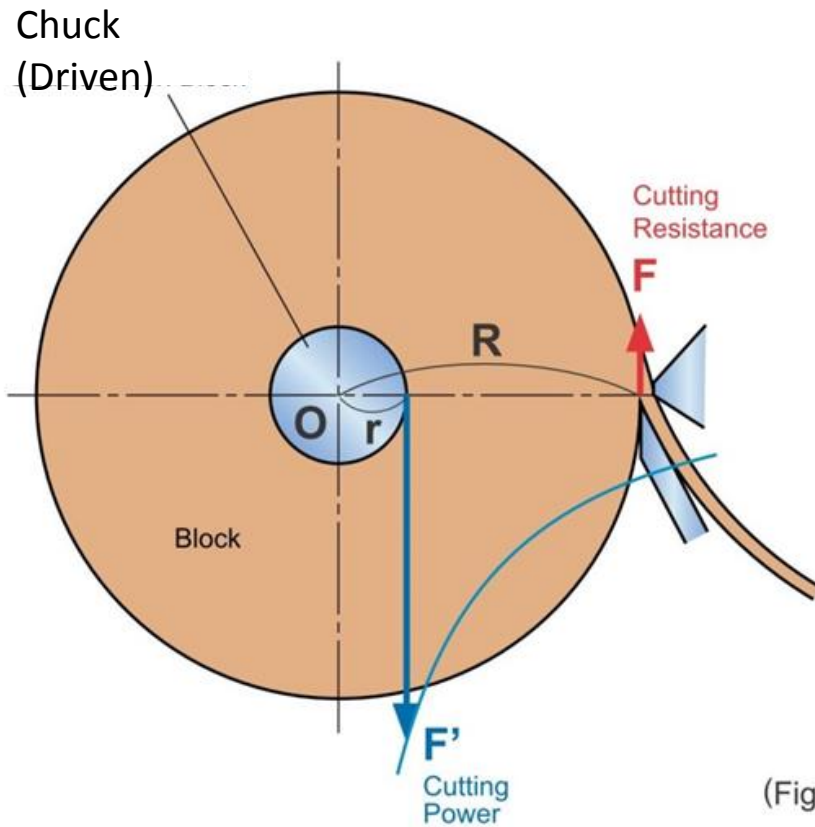
## Conventional Lathe

- Spindles drive the log during peeling
- Solid roller bar or nose bar
- Peeling force is greater than resistance force
- Requires operator setup and adjustments

## Meinan Lathe

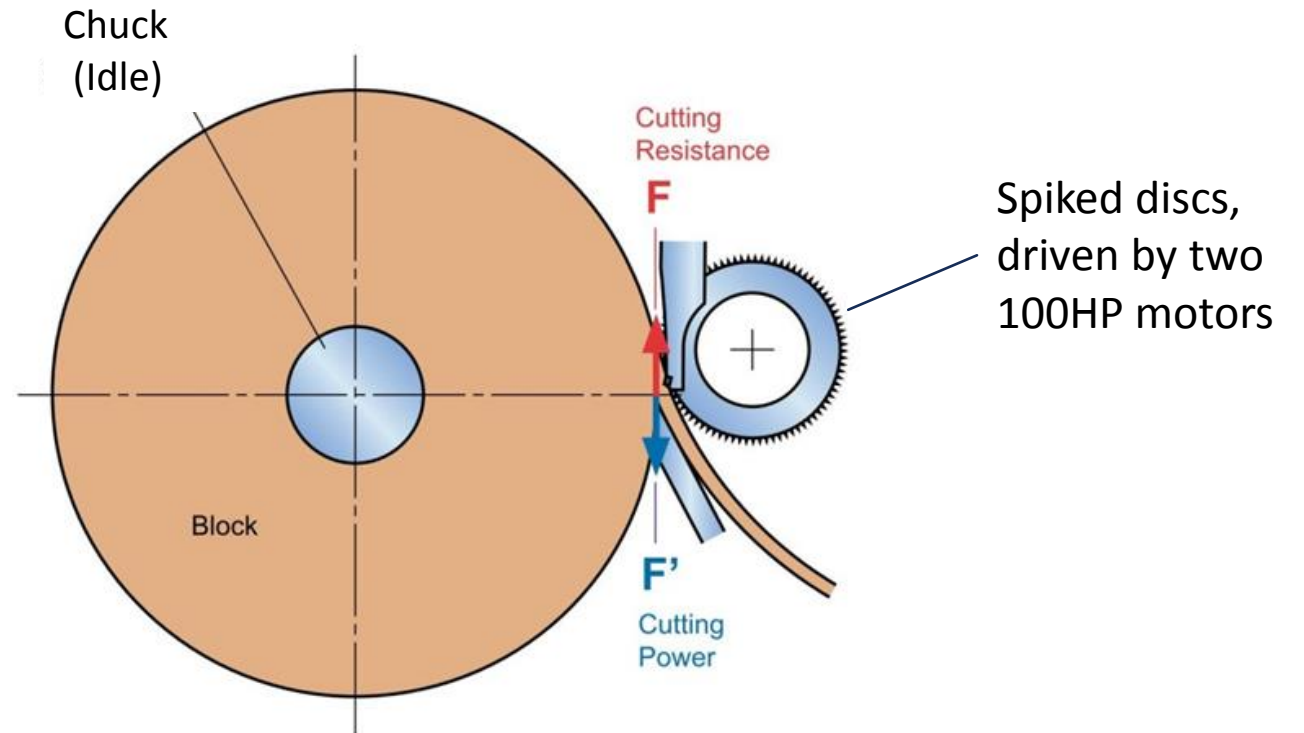
- Spiked discs along log circumference provide the driving force
- Segmented nose bar eliminates plug-ups
- Peeling force is equal to resistance force
- Single operator for entire line, knife angle is fixed

## Conventional Lathe



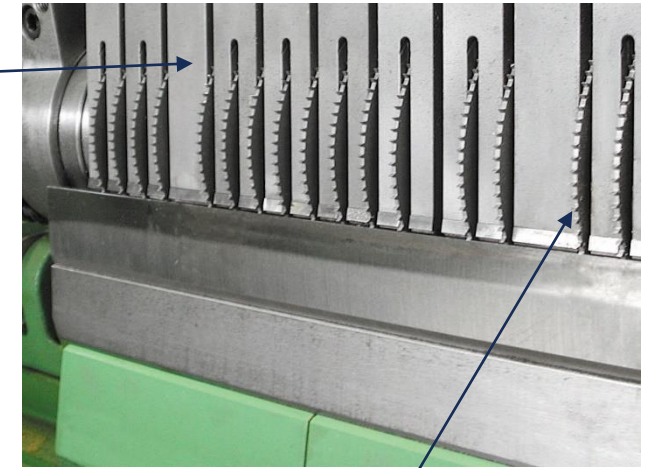
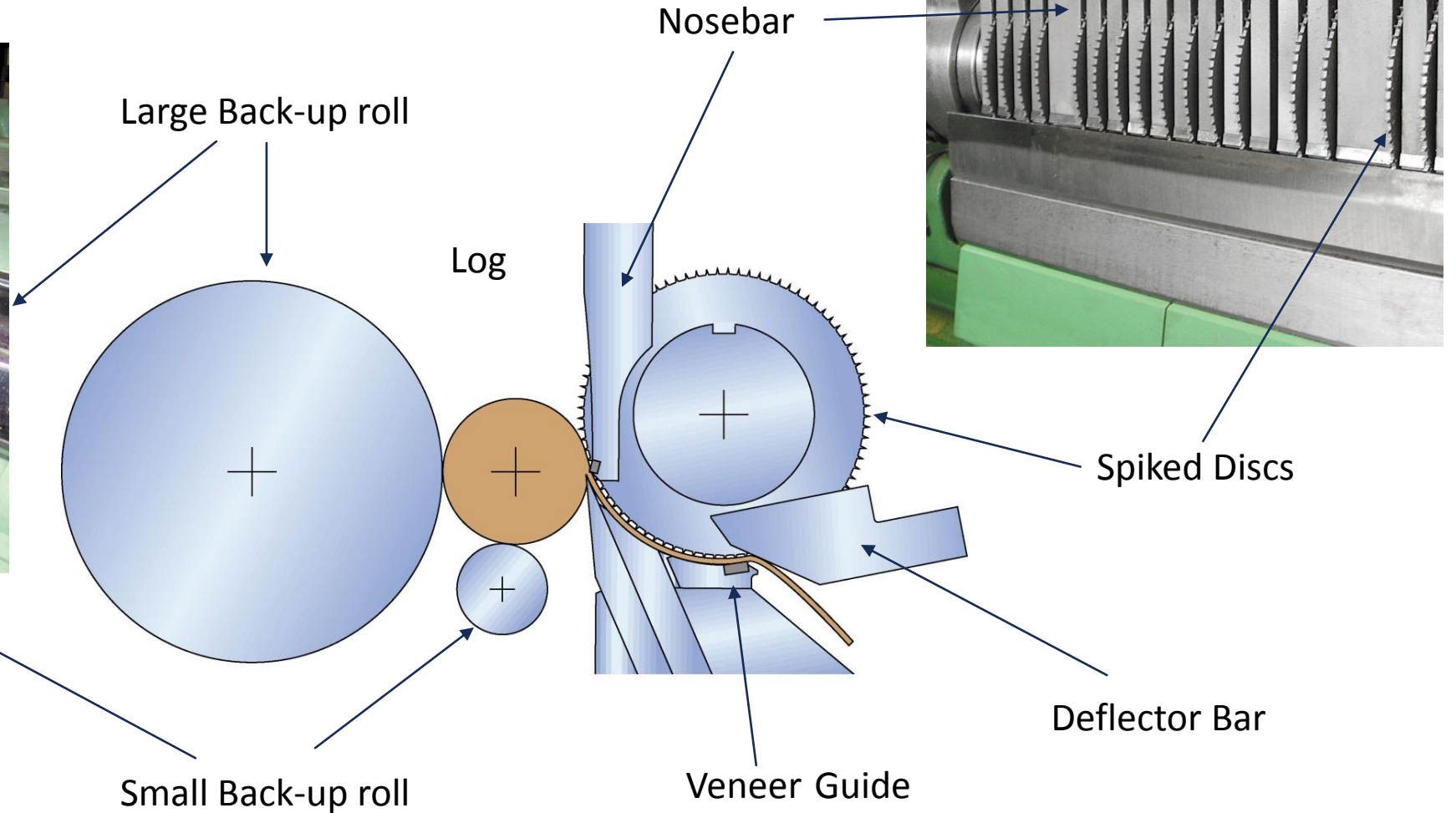
Spindle driven

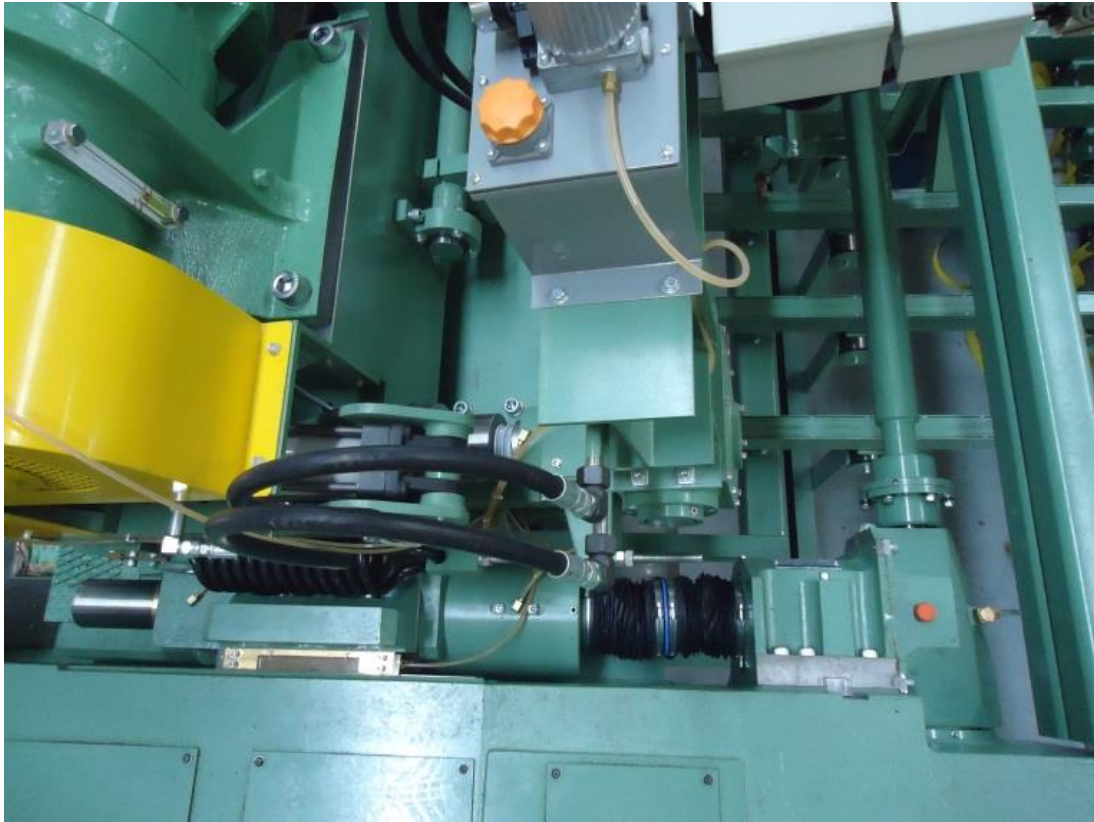
## Meinan Lathe



Circumference driven

# Sectional nosebar = no plug-ups





Heavy duty ball bearing feed screws

Single 30 HP AC servo motor – knife carriage

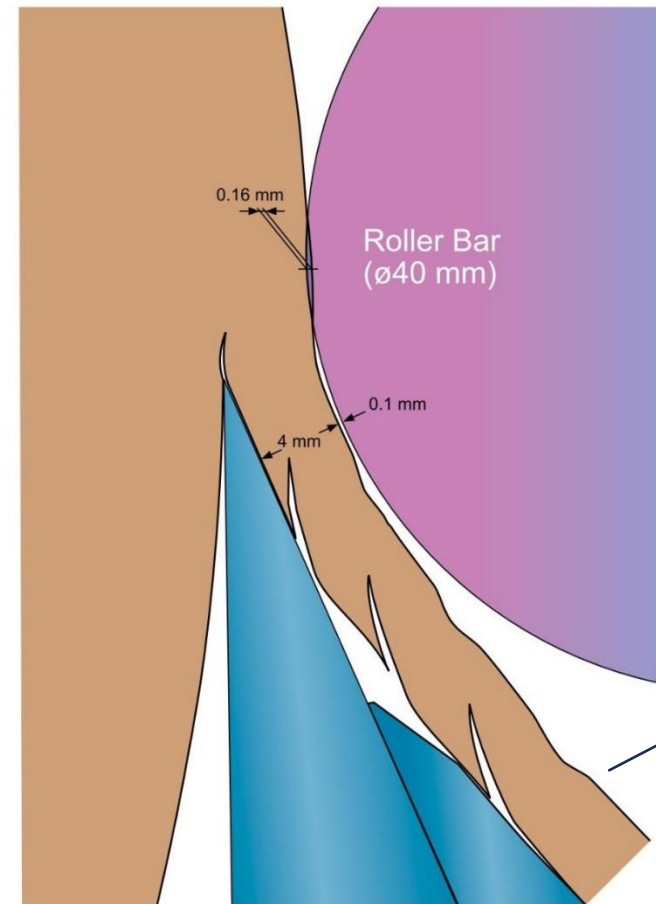
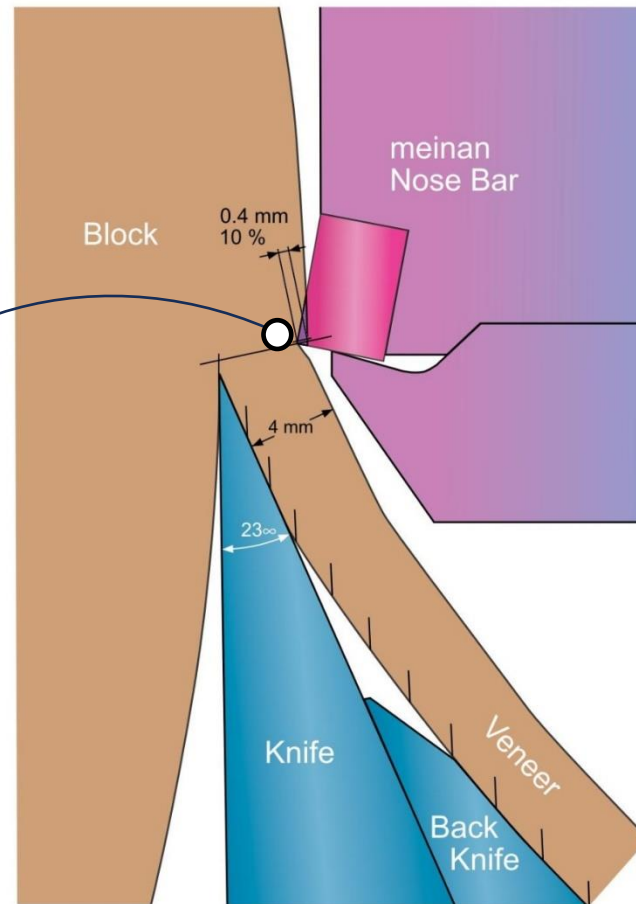


## Meinan Lathe

## Conventional Lathe

How are lathe checks on veneer reduced?

Nose bar tip is directly opposite the knife tip



# Advantages of the Meinan lathe

- Better veneer quality
- Lower labor costs
- Higher recovery
- Consistent peel thickness tolerance
- Increased dryer capacity
- Energy savings due to less log conditioning

# Better veneer quality



Very flat stacked veneer, sound knots



Very smooth surface with small lathe checks

# Lower Labor Costs

## Automated Operation:

1 lathe operator + 1 assistant  
Random width/fishtails are  
automatically stacked

## Fast knife changes:

5 minutes for lathe,  
3 minutes for rotary clipper





# Higher Recovery

Higher full sheet recovery

Ability to peel thinner

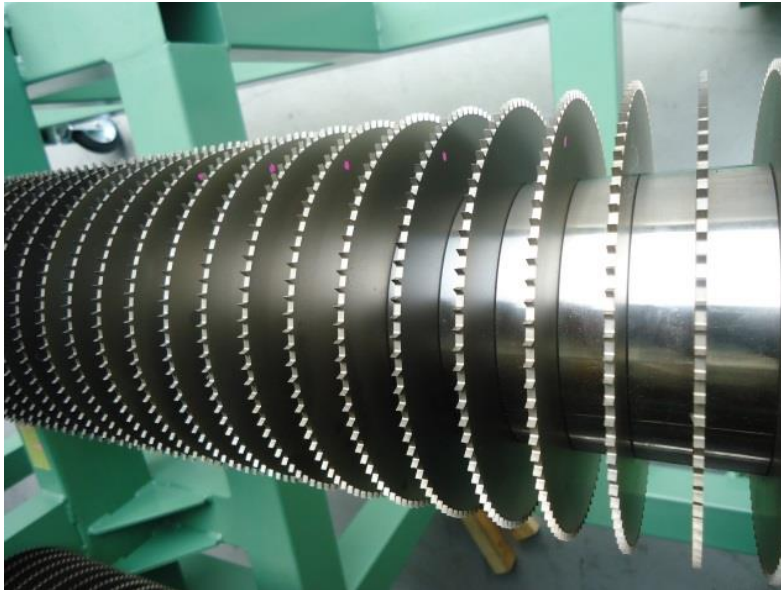
Lower material costs

2" log core



# Consistent Peel Thickness Tolerance

Spiked disk shaft is driven by two 100 HP motors



# Features of the newest Meinan peeling line

Meinan high-tech peeling line installed at  
Swanson Group Manufacturing - Springfield, Oregon:

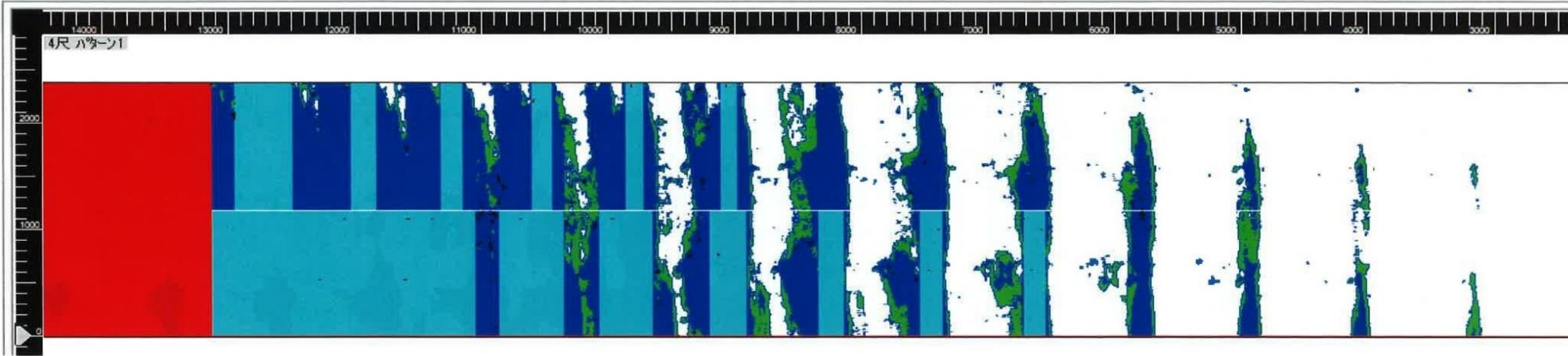
First plant in the world with fully automated green end

- Charger: 3-D Vision scanning with PC optimization
- Lathe: Constant peel speed
- Automatic knife changer
- Full sheet stacking by moisture content
- Automated random veneer clipping with in-line green veneer composing

# Charger: 3-D Vision scanning with PC optimization

- Light Stripe scanning method projects laser line onto log surface
- Multiple laser line projections for more data points
- All calculations completed in 1 rotation
- Up to 1200 scanning points per image
- Increased recovery due to greater accuracy in determining optimum spin axis
- Greater accuracy in determining maximum log radius

# Scanning simulation



- Full sheets (solid ribbon)
- Sent to composers
- Left or Right side defect bin
- Trash

# Charger Optimization

Veneer ribbon is split until an allowable percentage of defects are detected on the left or right side of the sheet

Parameters can be set for minimum and maximum size random strips to be composed



# Automatic knife changer – 5 minute knife change



Automatic  
separation of  
fishtails/ random  
veneer and waste



Random veneer clipper



# Automatic Stacking

Veneer sheets are transported to the stackers by nail belts



Automatic full  
sheet stacking by  
moisture content,  
defect percentage,  
or grade



# In-Line Green Veneer Composer

Eliminates manual pulling and sorting at the green end

Increases dryer yield with maximized dryer coverage

Higher veneer yield and lower energy costs



# TEC-4 Tape Edge Composer

Special heat activated paper tape provides a strong joint

Stays on during the drying process

Prevents overlap defects in core veneer



# TEC-4 Tape Edge Composer

Tape width = 2"  
Length < 1/2"



# The Swanson/Meinan Story

Swanson Group's  
New plywood plant in  
Springfield Oregon:  
3 simultaneous cameras

