

# PANEL & ENGINEERED LUMBER INTERNATIONAL CONFERENCE & EXPO

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**LOG LATHE SYSTEMS:  
NEW DEVELOPMENTS IN  
AUTOMATIC VENEER PEELING LINES**

# Overview

**Meinan history**

**Lathe comparison**

**Plywood composition**

**Advantages of the Meinan lathe**

**Features of the new Meinan peeling line manufactured for Swanson Group**

# 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
- 130 U.S. patents, in addition to many Japan and worldwide patents



# 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

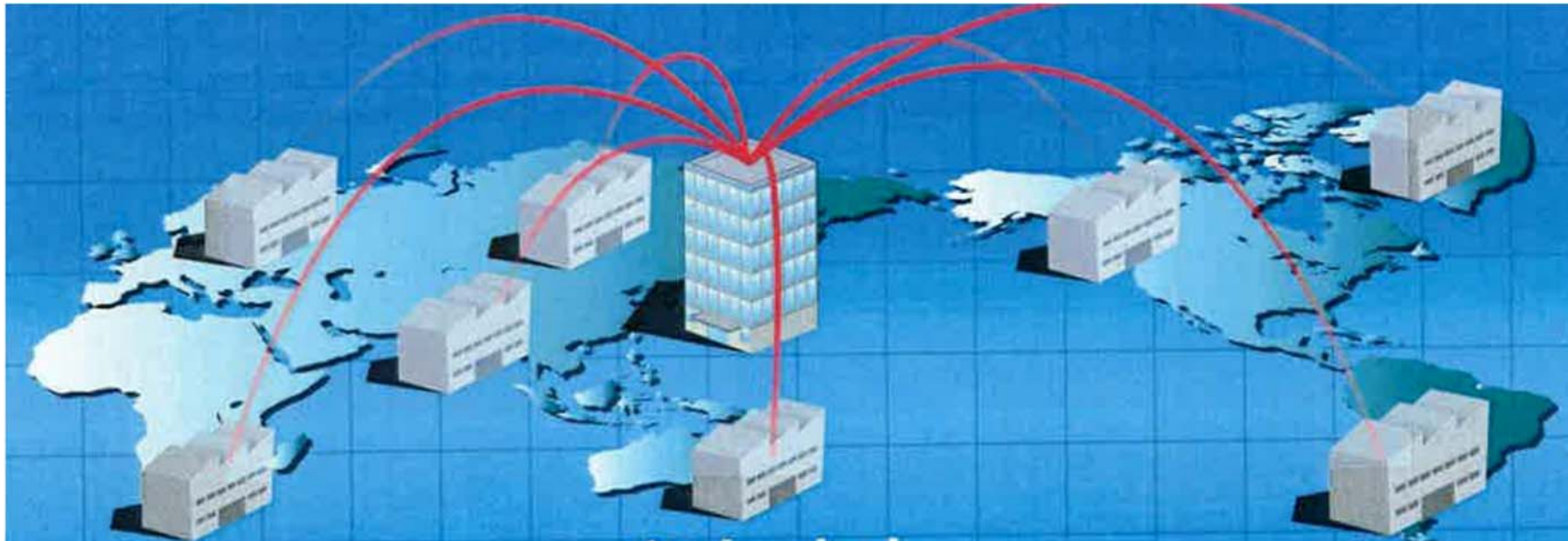
1990's – Patented the automatic knife changer

2000's – Patented the first composer to join random green veneer

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

# Meinan lathes are all over the world

Over 400 lathes sold:  
>175 Japan domestic market  
>250 Export market



# 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 focuses on recovery improvement to lower material costs, automation to lower labor costs, and technology to reduce glue and energy costs.

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

# Mechanical comparison

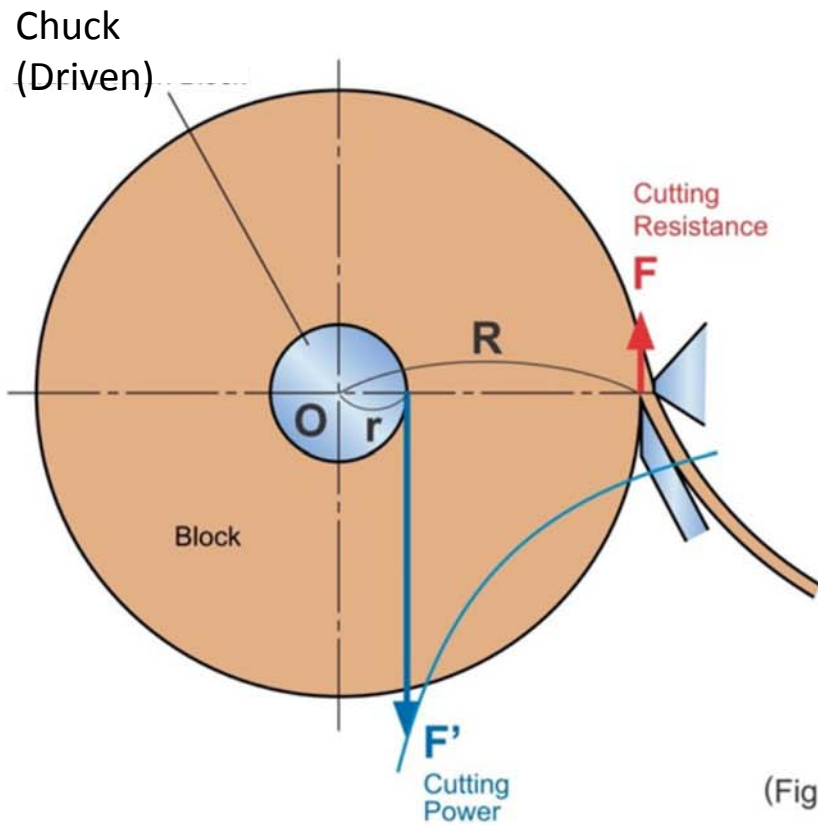
## Conventional Lathe

- Spindle drives the log during peeling
- Solid roller bar or nose bar
- Peeling force is greater than resistance force

## Meinan Lathe

- Spiked discs along log circumference provide the driving force
- Segmented nose bar
- Peeling force is equal to resistance force

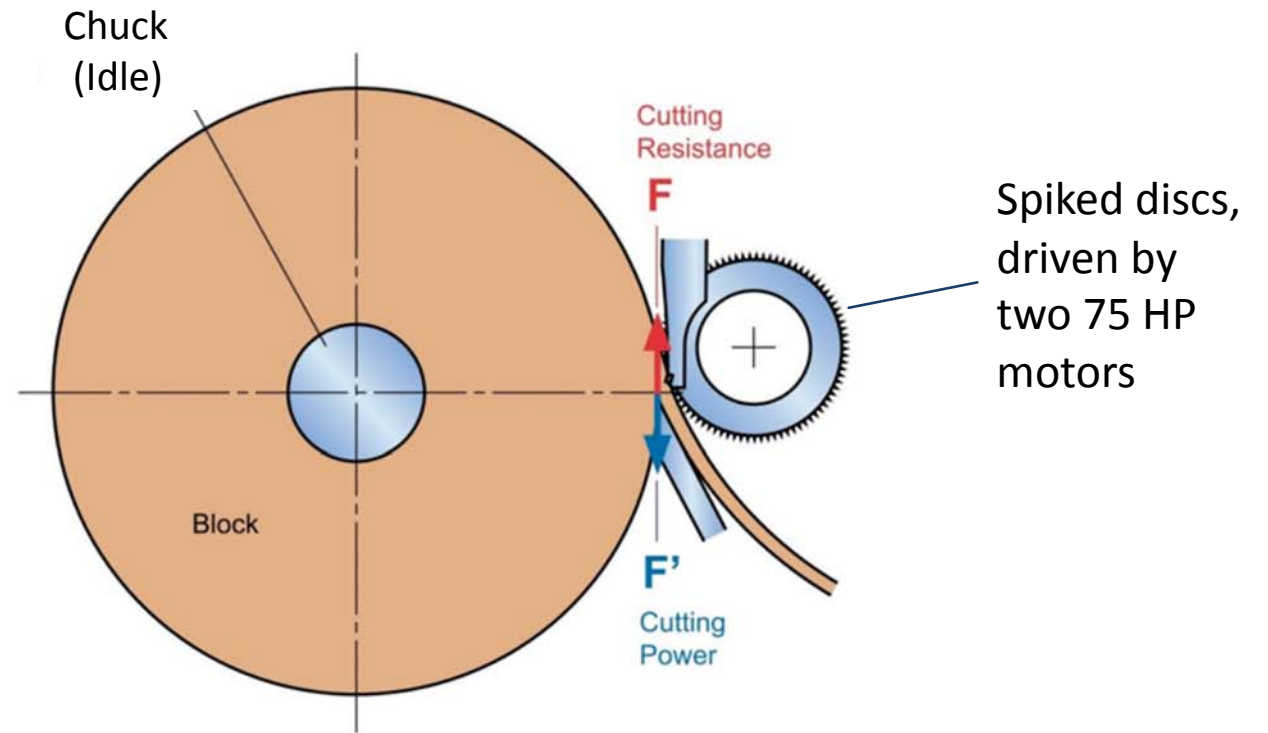
## Conventional Lathe



Spindle driven

(Fig.2)

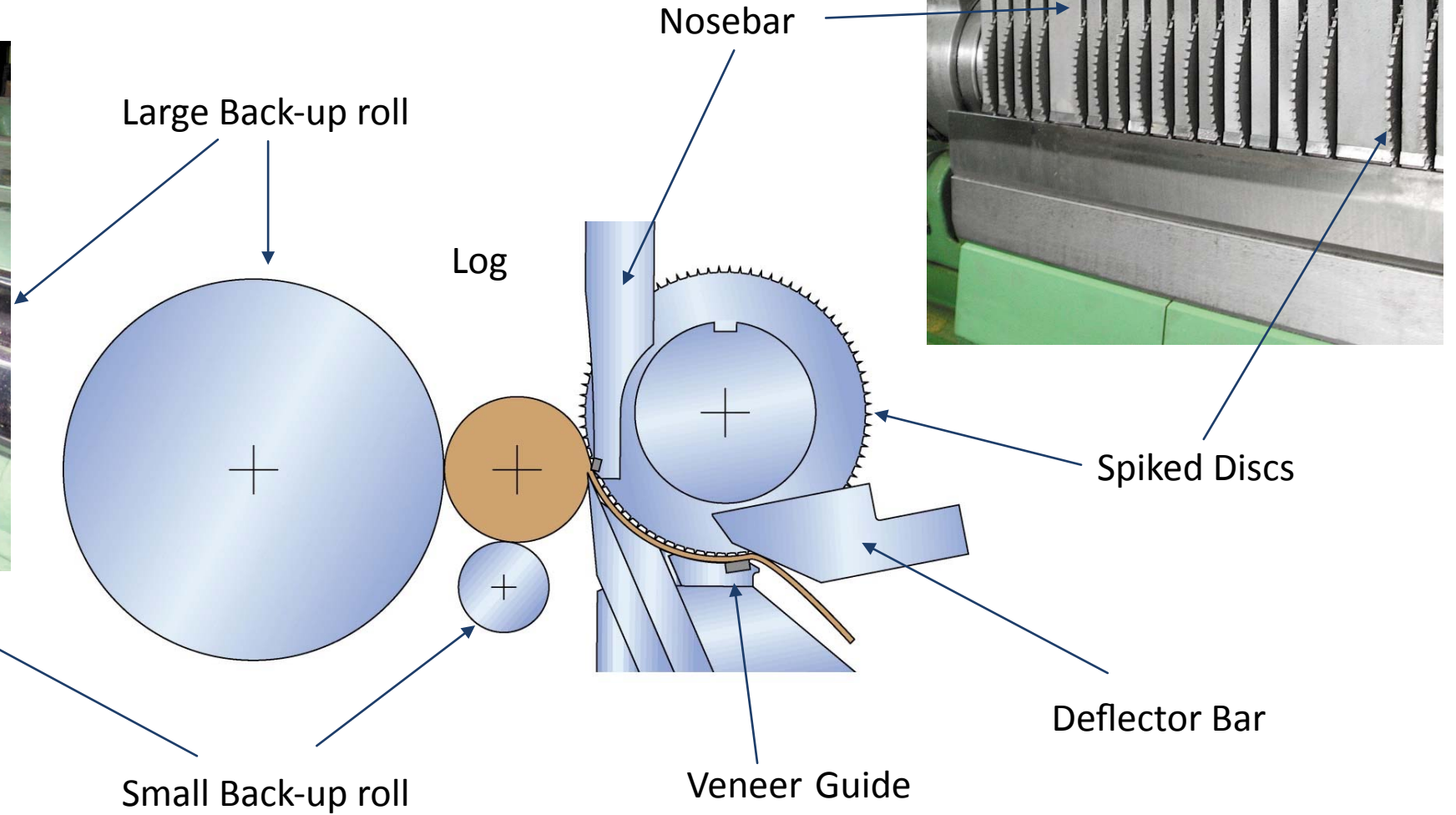
## Meinan Lathe

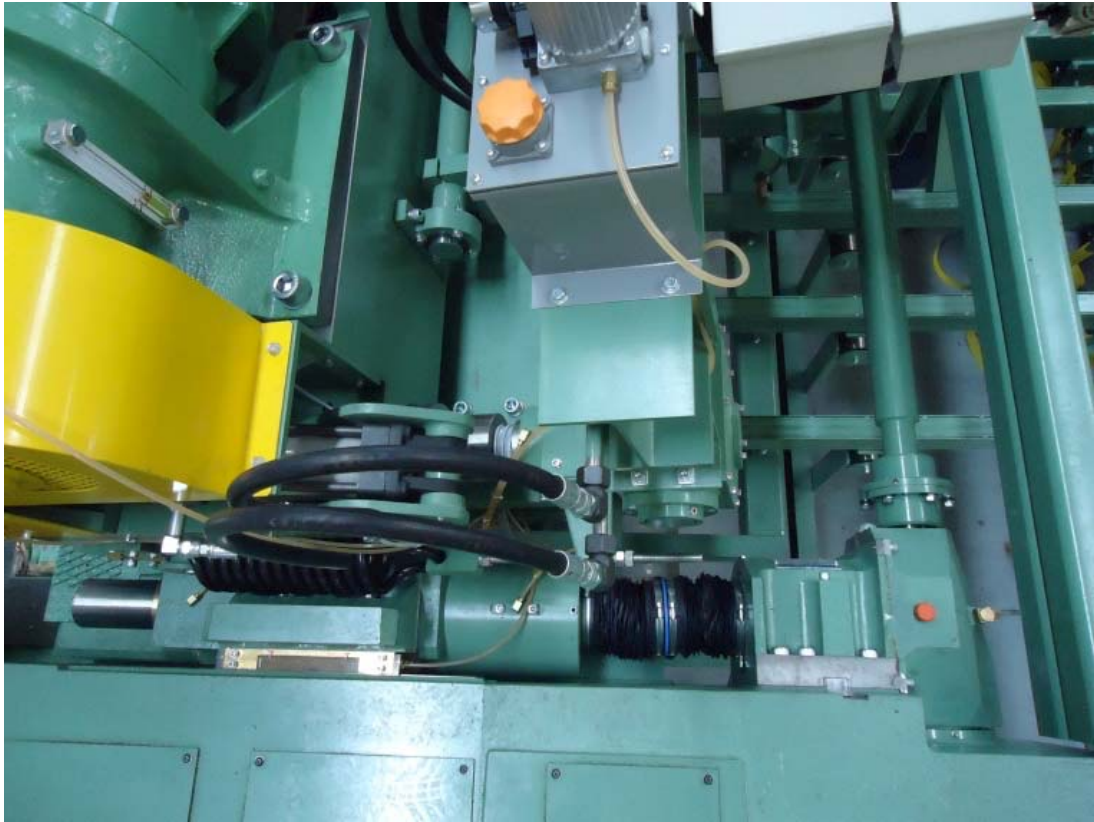


Circumference driven



# Sectional nosebar = smooth veneer





Heavy duty ball bearing feedscrews

Single 30 HP AC servo motor – knife carriage

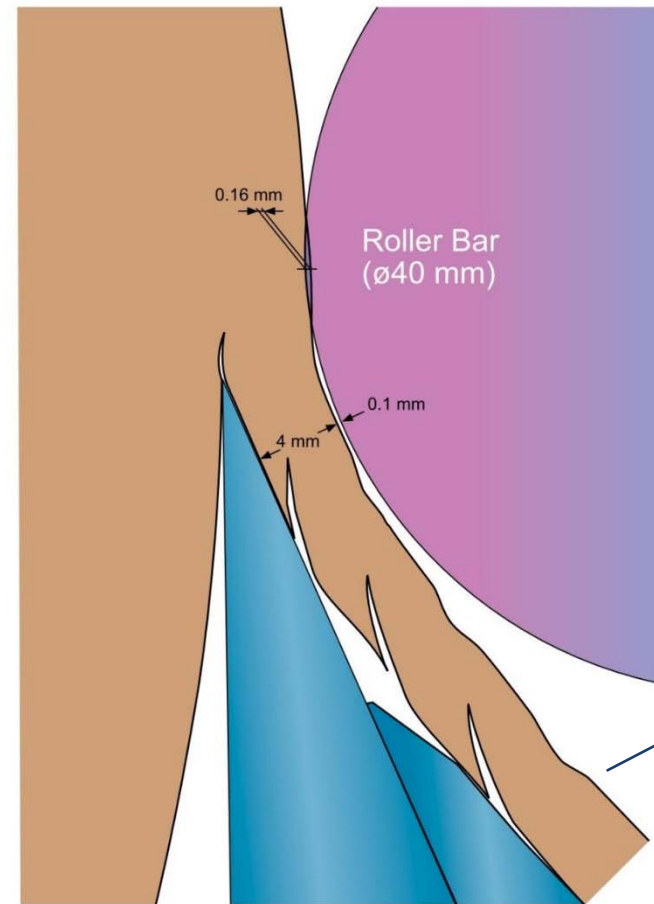
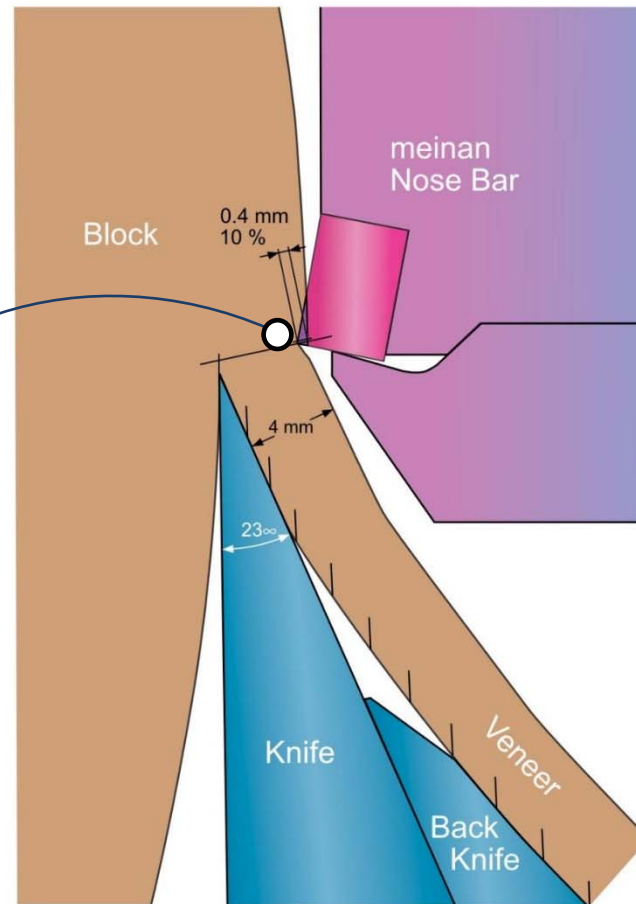


## Meinan Lathe

## Conventional Lathe

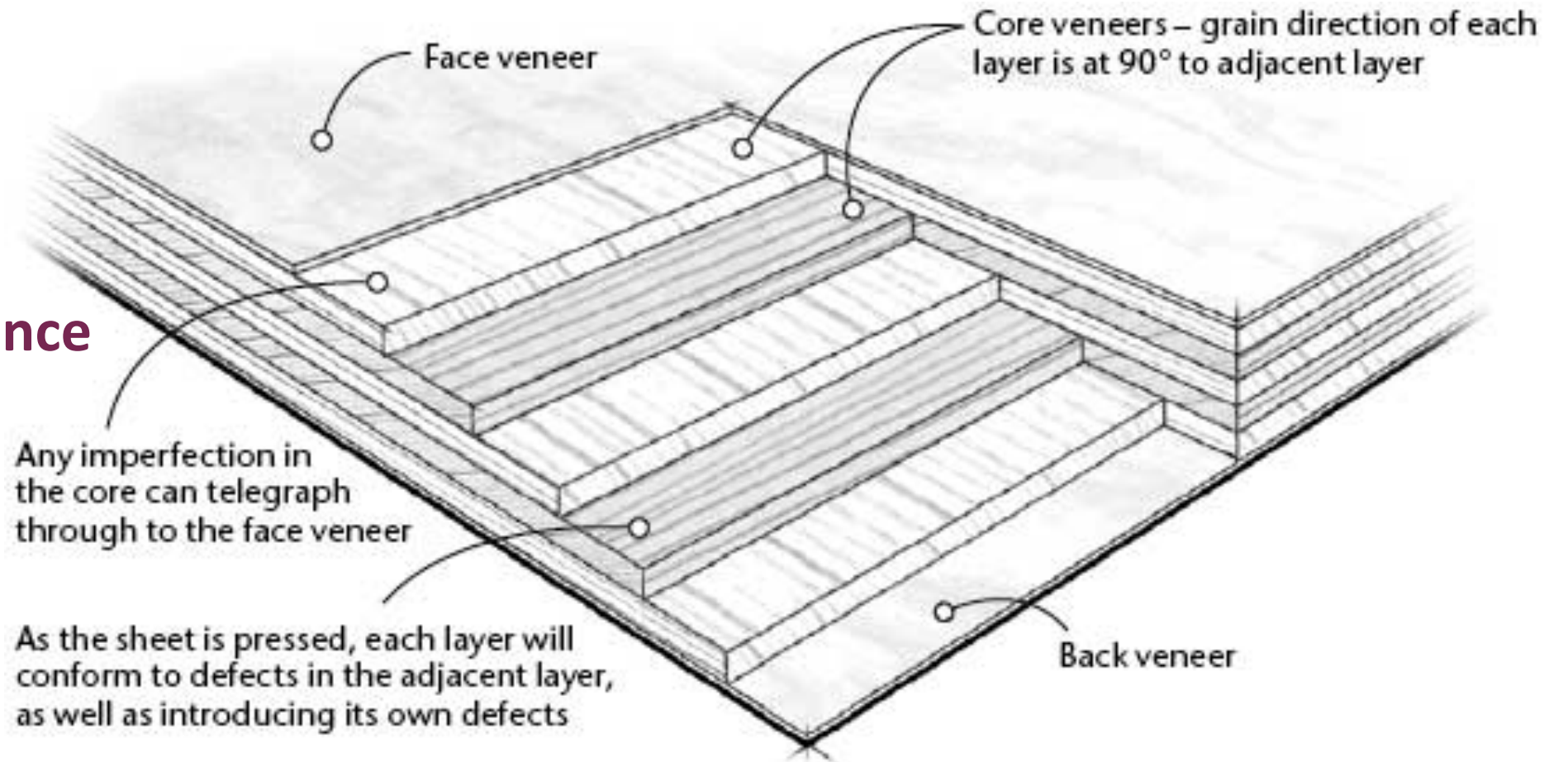
How are lathe checks on veneer reduced?

Nose bar tip is directly opposite the knife tip



# Plywood composition

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



# 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



Very smooth surface with small lathe checks

# Lower Labor Costs

## Automatic Operation:

1 lathe operator  
and 1 assistant

**Fast knife changes:**  
5 minutes for lathe,  
3 minutes for rotary  
clipper



# Higher Recovery

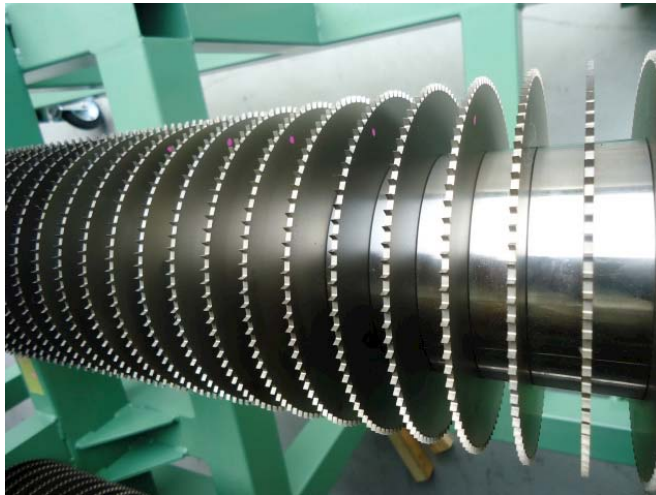
2" log cores (5 cm)



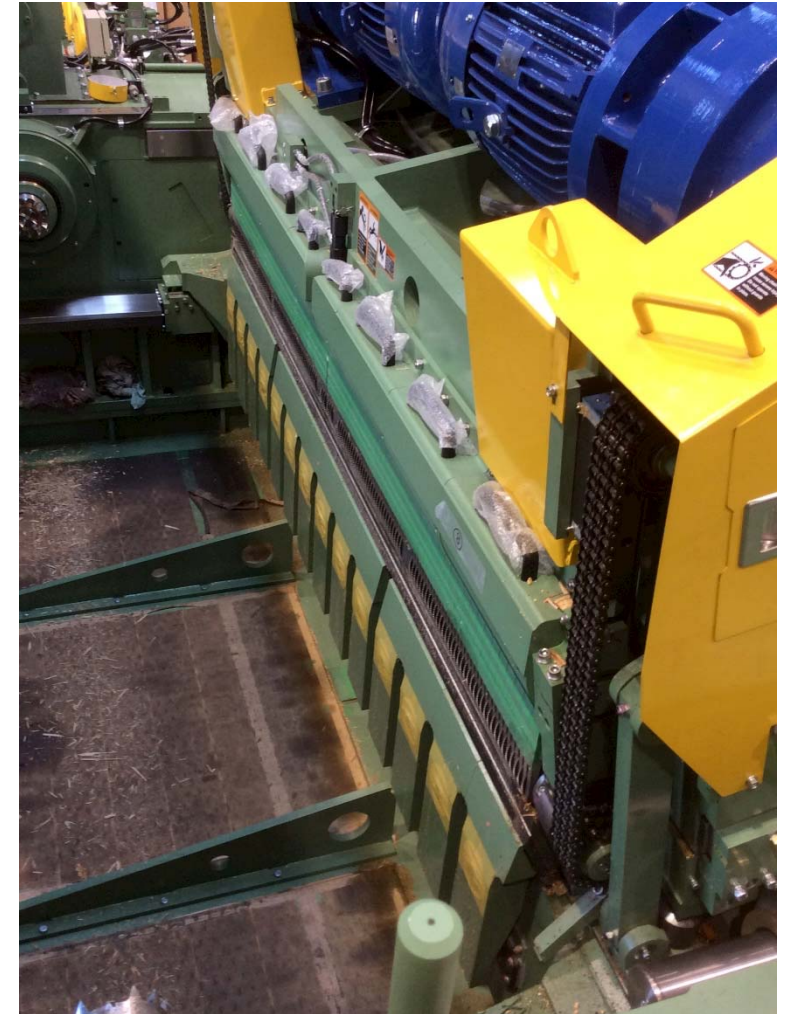


# Consistent Peel Thickness Tolerance

Spiked disks driven by two  
75 HP motors



Cart is included  
for fast changeover



# Features of the new Meinan peeling line

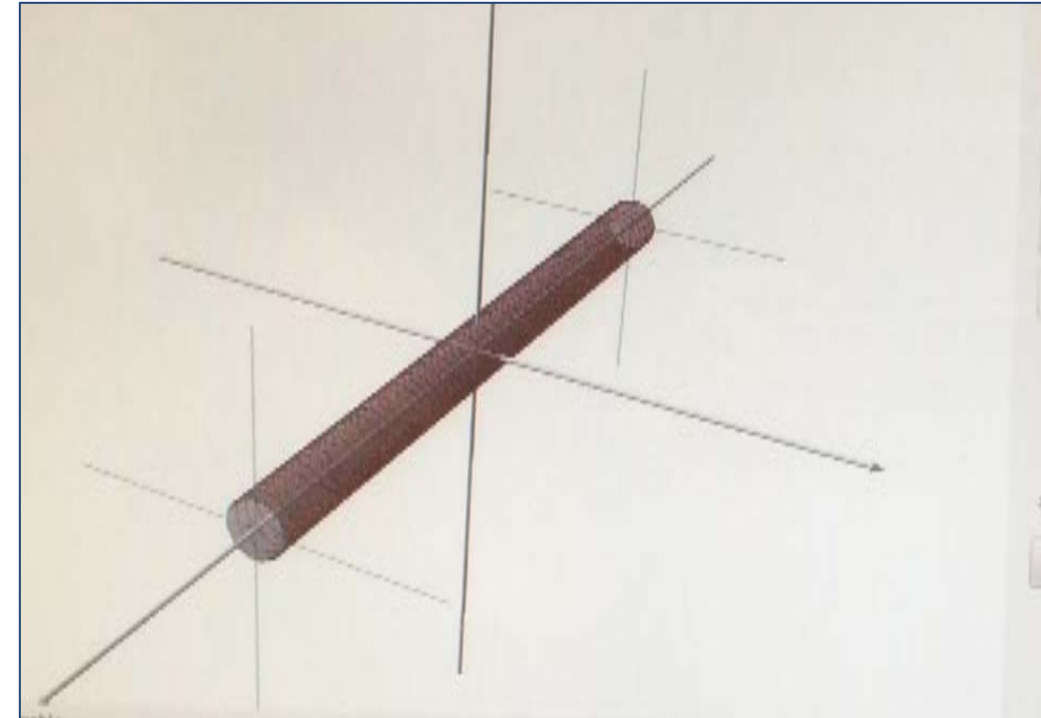
Meinan high-tech peeling line to be installed at Swanson Group Manufacturing plant in Springfield, Oregon:

First plant in the world with fully automated green end

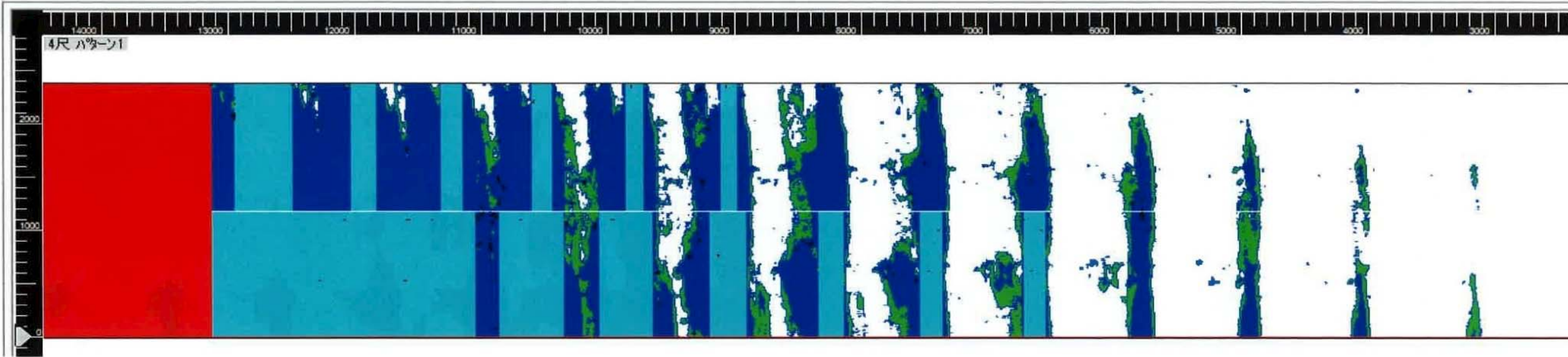
- Charger: 3-D Vision scanning with PC optimization
- Lathe: Constant peel speed for high productivity
- Automatic knife changer
- Full sheet stacking by moisture sort
- Automated random veneer clipping with in-line green veneer composing

# Charger: 3-D Vision scanning

- Light Stripe scanning method projects laser line onto log surface
- Multiple laser line projections for more data points
- 32 images per second, rotation in 1 second for all calculations
- Scanning points every 2.5mm
- Powerful lasers and camera perform accurately in harsh conditions
- Works with all wood species
- Increased recovery due to greater accuracy in determining optimum spin axis
- Reduced peel to peel time due to greater accuracy in determining max. 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



# Lathe



# Automatic knife changer



Automatic  
separation of  
fishtails,  
random  
veneer and  
waste



Random veneer clipper



# Needle belt stacking

Veneer sheets are transported to the stackers by needle belts



Automatic  
full sheet  
stacking by  
moisture sort



# Green Veneer Composers In-Line





Samples of veneer, plywood and LVL manufactured on the Meinan lathe are available at Meinan Booth #618 in the outer hall area.

Questions?

Special  
thanks to  
Steve  
Swanson  
and his  
team

