MODERNIZING THE VENEER PEELING PROCESS

Veneer peeling technology has undergone significant transformation over the last five years. These advancements have, in turn, thrown the shortcomings of conventional veneer peeling, clipping, composing, sorting, stacking, and drying processes into stark relief.

Precise block centering prior to lathing is more time-consuming using exclusively mechanical equipment. As a result, ensuring uniform thickness along the length of the entire veneer ribbon becomes more costly. Moreover, older lathes are also less capable of recovering all peelable wood, reducing the profit potential of smaller and lower-quality logs.

Manual processes can also limit capacity. Random handling can hold up the peeling line. Defect detection and moisture grading can cause inefficiency. Moreover, human operators face occupational hazards when interacting with or performing maintenance on mill equipment. Workplace injuries are costly and can lead to unplanned downtime.

Today's industry leaders understand the importance of reinforcing every link in the veneer manufacturing chain. That means embracing automation and assembling peeling lines with rapid scalability in mind. Raute's new Veneer Peeling Line R7-Hybrid Series represents a next-generation solution to minimizing variations in yield values, maximizing recovery, and improving quality.

In this article, we'll discuss the specific innovations introduced with this new veneer peeling line and the significant benefits your operation can expect to reap from them.

> Peel to the smallest core diameter to maximize recovery.

Powerful and Flexible Peeling Technology

Improved raw material utilization is critical to extracting the most value from your forest assets, both hardwoods and softwoods. The Veneer Peeling Line R7-Hybrid Series employs an adjustable lathe that can peel both with and without spindles. It can handle blocks from 130 to 600 mm, and, in spindleless mode, can peel to a core diameter as small as 25 mm. The R7-Hybrid Series can also accomplish this feat whether peeling veneer as thin as 1 mm or as thick as 4.2 mm.

For producers accustomed to standard core diameters in the range of 55 to 95 mm (depending on wood species and the technology implemented), this 25 mm figure represents a tremendous opportunity to maximize per-block yield, thereby increasing overall capacity without having to source additional logs. As Raute Technology Manager Mikko Vesterinen points out, "Peeling to the smallest possible core diameter translates into maximum recovery of your raw material."

The R7-Hybrid Series further maximizes face veneer and full sheet recovery by means of Raute's proprietary Optimal Peeling Geometry (OPG) technology. As the block is peeled and shrinks in diameter, OPG dynamically positions it relative to the knife's angle and nose bar. In this way, the R7-Hybrid Series maintains consistent pressure both in the knife gap and against the block throughout the peeling process. OPG also directs the knife along a path that produces the least vibration, effectively eliminating cracks and spinouts. The final output is a veneer ribbon of exceptionally high quality and strength.

Smarter and Safer Automation

OPG is just one example of the advanced machine vision technology Raute has incorporated into

the Veneer Peeling Line R7-Hybrid Series. At each phase of the production process — centering, peeling, clipping, and grading — automation provides value. According to Mikko, these analyzers and processes can help you “boost your rate of full sheet recovery by as much as 15%.”

Raute’s Block Centering Analyzer R7 applies laser scanning and patented auto-calibration routines to create an accurate 3D rendering of each block. This technology allows the R7-Hybrid Series to determine ideal per-block positioning and continuously correct that positioning from block to block to ensure each peel produces the maximum amount of veneer. After the veneer ribbon is clipped, visual analyzers inspect each sheet and verify its dimensions. They also reject any broken or defective sheets. Automatic stackers then group sheets by their quality and moisture grading in preparation for drying.

The machine intelligence built into the R7-Hybrid Series means a single operator can oversee your entire production line. State-of-the-art safety features further enhance these labor savings. For example, knife-changing on the Veneer Peeling Line R7-Hybrid Series is assigned to a robotic arm. Your maintenance technicians can therefore focus on more urgent tasks, such as averting stoppages and increasing uptime.

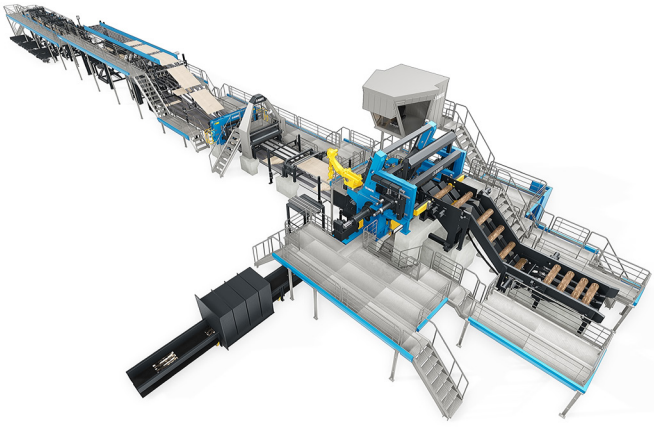
Maximum Recovery with Minimal Waste

With the development of the Veneer Peeling Line R7-Hybrid Series, Raute’s engineers have taken a holistic approach to redefining peak performance. The R7-Hybrid Series’ peeling speed tops out at 300 m/min, meaning it can achieve block cycle times of up to 10 pieces per minute.

Veneer ribbon analyzers maximize sheet production while reducing random and fishtail veneers as well as waste produced during the peeling process. The R7-Hybrid Series also makes it easy to compose green randoms — even strips as narrow as 20 mm — into full sheets. Additionally, lines outfitted with Raute’s moisture grading solutions can expand your drying capacity by up to 20%.

Just as importantly, the R7-Hybrid Series delivers these outstanding results while only using between 480 and 500 kW of installed power. As Mikko explains, “We’ve upgraded several basic components to next-generation hydraulics and AC servo drives. Our goal is to help our customers increase capacity while

Boost full sheet recovery by as much as 15%.



Achieve energy savings of up to 30% over conventional peeling technology.

decreasing their power consumption." The energy savings thus generated are considerable: up to 30% over those possible with conventional veneer production technology.

Multiple Solutions for Modernizing the Veneer Manufacturing Process

The R7-Hybrid Series is the latest addition to Raute's full complement of peeling solutions. These solutions include the R3, R5, and R7 Series. Each option provides a different level of automation and production optimization.

The R3-Series supports fast and easy veneer manufacturing ramp-up while creating possibilities for add-on capacity. A 100% electrically operated spindleless lathe drives the efficiency and effectiveness of this solution. Ideally suited for small diameter blocks of hardwood and softwood, the R3-Series enables you to peel veneer sheets of unmatched thickness tolerance.

The R5-Series gives you proven capacity that can be upgraded effortlessly and as needed. For those in need of a reliable workhorse, the R5-Series builds upon the R3-Series' already robust capabilities. That includes the latest block charger technology plus clipping and stacking options you can easily customize based on either your raw materials' or end products' specifications.

The R7-Series is a high-capacity, high-speed solution that offers unprecedented flexibility and extraordinary performance. Augmented with the full array of Raute's patented machine vision technology, the R7-Series gives you the ability to peel varied veneer thicknesses, block lengths, and raw materials. Meanwhile, multiple analyzers both automate and optimize the clipping, grading, stacking, and drying processes.

Moreover, the R7-Series is fully modular. You can quickly swap out individual machines and integrated components as new technology is introduced or your production needs change. And you can fuel continuous improvement by connecting the R7-Series to Raute's MillSIGHTS data capturing and reporting system.

Scale rapidly, improve yield, and maintain exceptional quality with Raute.

Our company's trusted technology is currently optimizing yields and improving face veneer quality at over 700 installations worldwide.

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Making wood matter