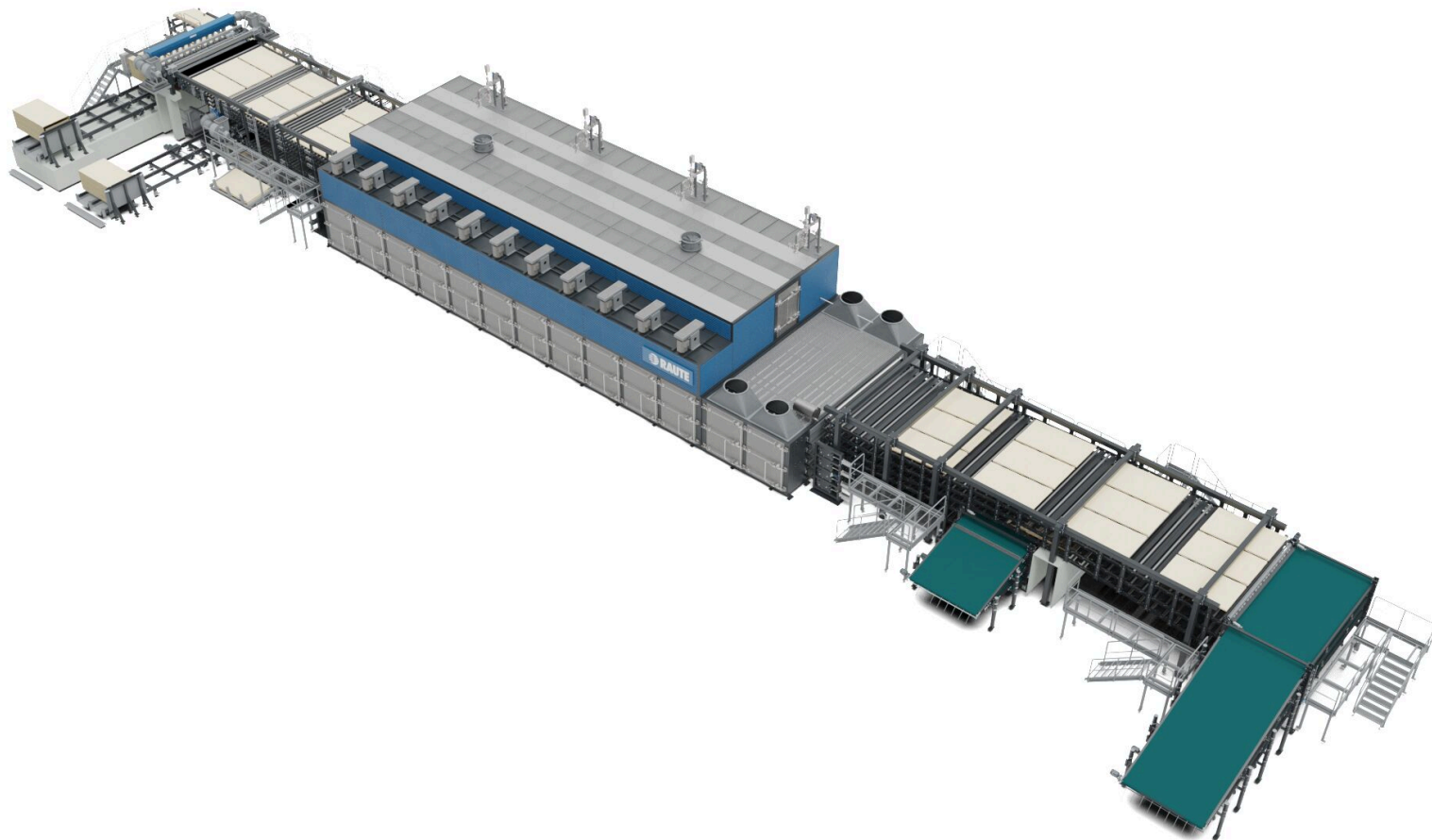


## Veneer Drying Line R3

# STANDARD FOUNDATION FOR INDUSTRIAL VENEER DRYING



## Veneer Drying Line R3 – The easy to install and operate standard

The Veneer Drying Line R3 is your choice when you are starting the industrial veneer drying and you don't need high automation. The line is capable to handle hardwood and softwood when producing veneer sheets. It is easily installed just on a flat floor on rails giving significant savings since no special foundations are needed.

Industrial veneer drying means 80% less operators for the job yet more efficient production. The dryer handles full-sized veneer sheets giving 15% more yield compared to natural drying processes. The line's capacity is 16 veneer sheets per minute with a short drying time. The Veneer Drying Line R3 dries the sheets always to the optimal 5-8% moisture level.

Standard grayscale veneer visual and moisture analyzers can be installed on the line.

Also, the R3 series dryer has 6 decks giving an advantage of needing 30% less floor space than a traditional 4-deck dryer. Its completely insulated shell not only saves in heating energy but gives even drying from the top to bottom decks.

## Key benefits

-20%

OPTIMAL DRYING  
SAVES 20% IN ENERGY

-30%

SAVE 30% IN FLOOR  
AREA COMPARED TO  
TRADITIONAL 4-DECK  
DRYER

-80%

SAVE 80% IN LABOR  
COMPARED TO  
NATURAL VENEER  
DRYING

+15%

DRYING FULL-SIZE  
SHEETS IMPROVES  
RECOVERY BY 15%



## References



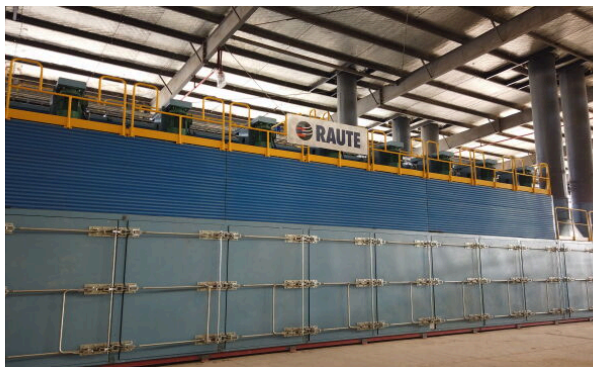
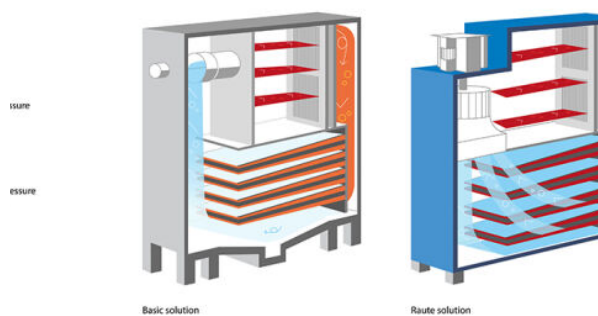
### Guangxi Guoxu Spring Woodbased Panel Co., Ltd.

Raute has delivered modern, high technology veneer production lines with high-quality analyzers to Guoxu Spring Woodbased Panel Co., Ltd in South China.



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## Images and videos







# Downloadable material



**WHAT IS R3 SERIES ALL ABOUT?**


**THE RAUTE R3 SERIES IS ALL ABOUT EASYNSS WITH HIGHEST QUALITY.**

Say hello to the new kids on the block – The Raute R3 Series. The R3 Series' machines and lines are most suitable for you when you are starting the industrial veneer production, or you have basic production requirements. And what's more, they all are compact-sized needing only a little floor space.

The R3-line and R3s are of utmost high-quality, destined to have the job done. The lines are plug-and-play, so the commissioning takes only a short time. We deliver the machines with affordable investment price and quick, under-expected, delivery time.


The R3 lines are the premium Raute-quality machinery to have the job done. The beginning has never been easier until now. We made it easy for you.

These R3-series lines are the first of many to come. We are constantly developing new machinery and solutions for our customers' changing needs. We are going to introduce new line and machines to the R3-series continually.






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**VENEER DRYING – WHY TO DO IT AND HOW TO DO IT?**





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**VENEER DRYING PROCESS AND BENEFITS**

This paper discusses the fundamental factors influencing the quality of veneer, the energy needed to dry veneer, and the most optimal conditions for drying.

**BENEFITS OF VENEER DRYING PROCESS**

Numerous benefits will be achieved by a well-controlled veneer drying process:

**High veneer value and quality** are achieved when produced veneer sheets have even moisture content with a minimal amount of over-dried sheets. This leads to the higher value of the veneer as the sheets have fewer mechanical defects like splits and warms, and veneer sheets are in optimum one-piece format. This means a lot of raw material savings and more better-quality sheets to the next production phase, which increases your production quantity and earnings.

**Process savings** are achieved in the energy consumption versus veneer quality and value ratio. The optimized drying process leads to less glue usage and shorter pressing time.

The Hi-automated drying line is **easy to operate** and the line is working all the time with best available efficiency and quality.

**High panel quality** and value are produced with even moisture content in the core and surface of the panel, establishing dimensional higher quality veneer without holes and splits also establishes higher quality core panel production and higher panel surface quality. You need to do less after reaping when the drying process and the veneer grading are on optimal settings.


**THE FUNDAMENTALS OF ECONOMICAL VENEER DRYING PROCESS**

**Wood structure and water**

The wood material is constructed of cell structure, which varies by wood species, the major difference being between broadleaves and coniferous species. In practice, water in the wood is positioned in three locations of the wood structure: between wood cells, inside of wood cells, and inside of cell walls.

Typically, in the broadleaves wood species, the crosswise moisture variation between surface and heartwood is not exceptionally large. From 30% to 60%, for example. But in the coniferous wood species, the difference can be relatively large, even from 20% to 80%, which is partly caused also by a large density difference between light heartwood and high-density sapwood.

The moisture in wood cells and between cells is called "free water", and water in cell walls is called "bound water". In the veneer drying process, free water is removed first and bound water at the end of the process. Towards the end of the drying process, the wood material starts shrinking.



RAUTE  
Automating  
the making of wood matter



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## Technical specifications

|   |      |
|---|------|
| Operators on the Line                                   | 4    |
| Heat Energy Consumption (KWh/m <sup>3</sup> Dry Veneer) | 406  |
| Drying Time (min)*                                      | 3.20 |
| Dry veneer capacity* up to (m <sup>3</sup> /h)          | 9,5  |
| Installed power (kW)                                    | 300  |

# Veneer drying

## The smart veneer drying solutions for every scale production

Veneer drying is one of the most crucial phases of veneer production. The main objective of the drying process is to produce high-quality optimally dried veneer sheets with the highest possible efficiency. This is carried out by removing water from the sheet and decreasing moisture content to an optimized level by using hot and humid air inside a dryer.

By choosing industrial veneer drying, you improve veneer quality with uniform drying result. As a result, you get high-quality, even moisture content veneer sheets that are ready to be glued and processed further as LVL beams, plywood, panels, or other end-use products.

The successful veneer drying has many positive impacts on your production and veneer quality. With optimized veneer drying conditions, equipment, and process, you produce more high-quality veneer with less energy, raw material, and waste.

The most sophisticated drying solutions include grading. You can grade the dried veneer sheets to different veneer types for plywood or LVL production.

Raute offers three different veneer drying line series called R3, R5, and R7 from which the latter is the most automated line ever created to the veneer production industry. Our drying line solutions R5 and R7 always include the veneer sheet grading after the drying line.

Start your production or add capacity easily with our R3-Series. When you want capacity that can be upgraded effortlessly and a line that allows modernization through process-specific updates, R5-Series is your solution. Put automation and machine vision in full use with R7-Series and master your productivity with high speed.



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Making Wood Matter