



JARTEK → DRYING KILNS





EXPERIENCE AND DEVELOPMENT ENSURE A SUCCESSFUL END RESULT

You know what successful drying is – we know how to achieve it.

WE KNOW THE SAWMILL INDUSTRY

Jartek has been operating in the sawmill industry since 1957. We know everything there is to know about drying and the entire production process. We provide high-quality drying solutions that function smoothly as part of the overall process of a sawmill.

WE KNOW TIMBER

Successful drying requires knowledge of the final purpose of use and the properties of the timber to be dried. The tree species from the northern coniferous forest areas have special attributes that we take into account not only in the engineering and dimensioning of the drying kilns but also in the management of the drying process. We can handle arctic conditions, so you can count on the reliability of our equipment.



WE BRING EFFICIENCY TO PRODUCTION

The keys to efficient production are drying quality, process speed, and low costs. Our drying kilns feature efficient radiators, large fans, and precise control systems ensuring impeccable quality and speed.

By investing in Jartek’s properly dimensioned, durable and energy efficient drying kilns, and extensively automated load conveyance systems, you can keep utilisation rates high and expenses low.

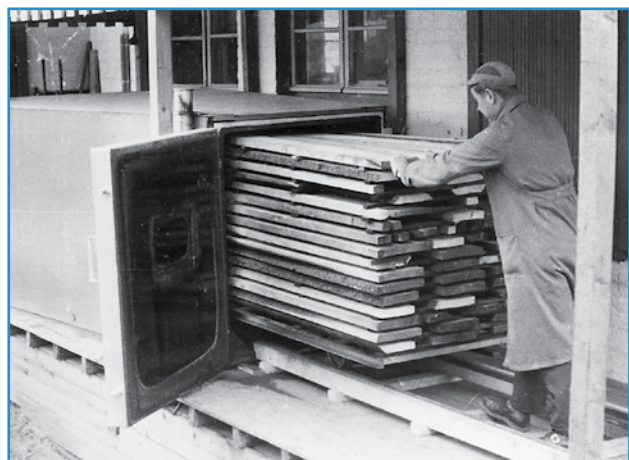
Another important element of quality is occupational safety, which is ensured by means of safety doors, railings, and safety-increasing control technologies.

WE ENGAGE IN ACTIVE DEVELOPMENT WORK

At Jartek, our constant R&D efforts guarantee that our equipment is always up-to-date and meets the customers’ individual needs now and in the future. The test drying kiln located in Lahti is used to perform test runs to support the development work.

WE WORK ON SCHEDULE

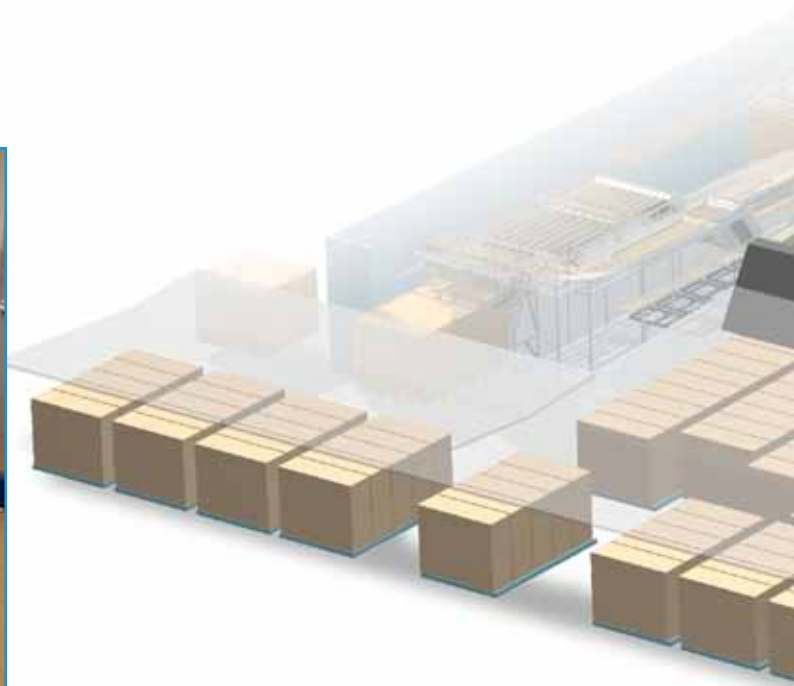
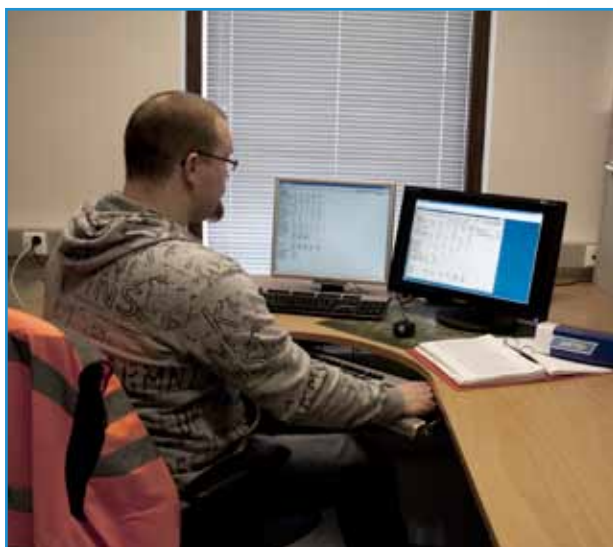
Jartek is a reliable project supplier whose extensive expertise in engineering and excellent management of the supply process ensure a reliable and timely delivery.



A Jartek high temperature drying kiln from the 1950s.

HIGH CAPACITY

up to 800,000 m³/a

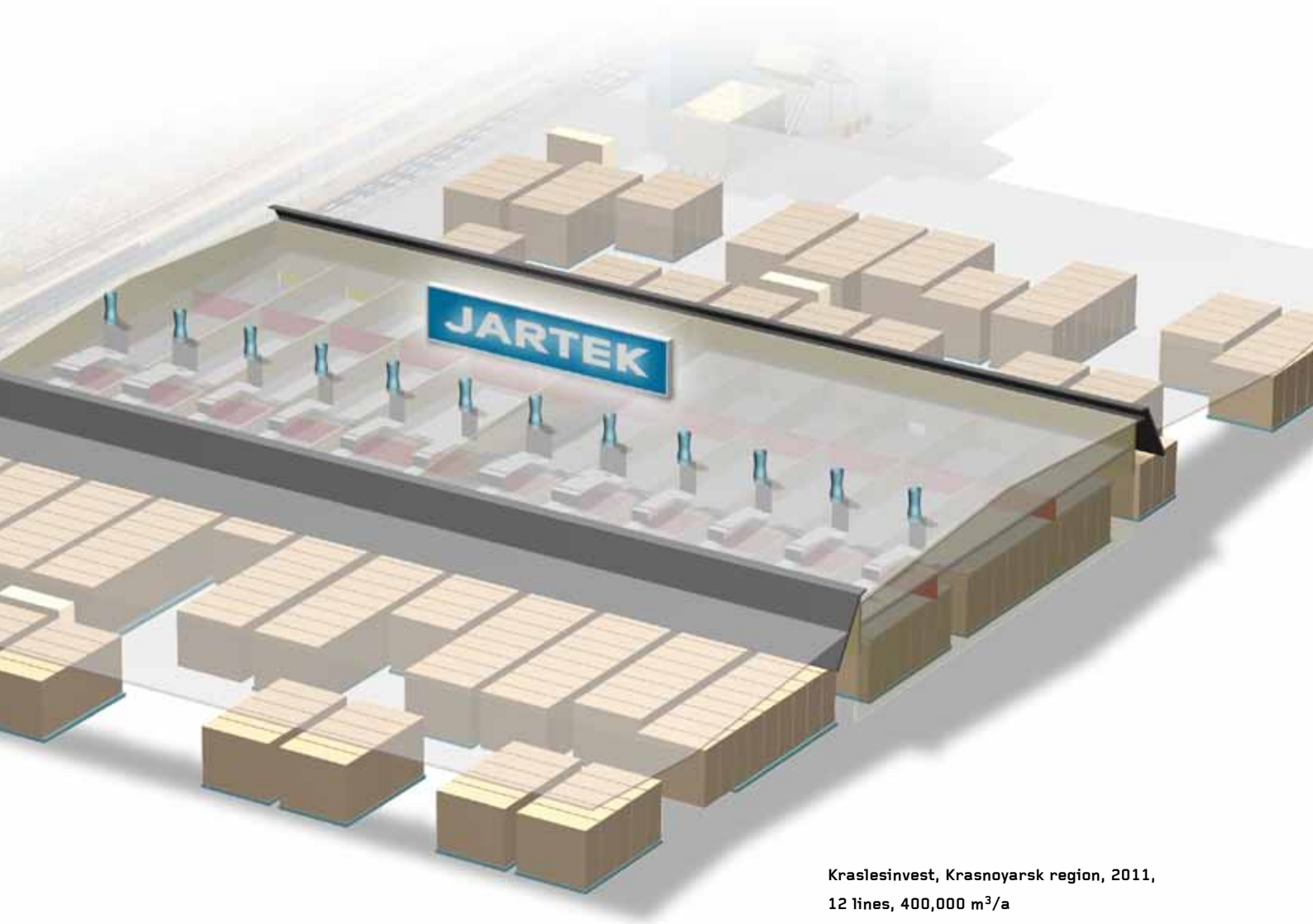


The best drying kiln solutions for large sawmills are two-stage progressive kilns with traverse cars. The progressive kilns can achieve unparalleled capacity compared to any other solution. They are at their best when drying large quantities of a mill's primary timber dimensions. Contrary to popular belief, progressive kilns are also perfectly suited for drying timber to lower moisture contents.

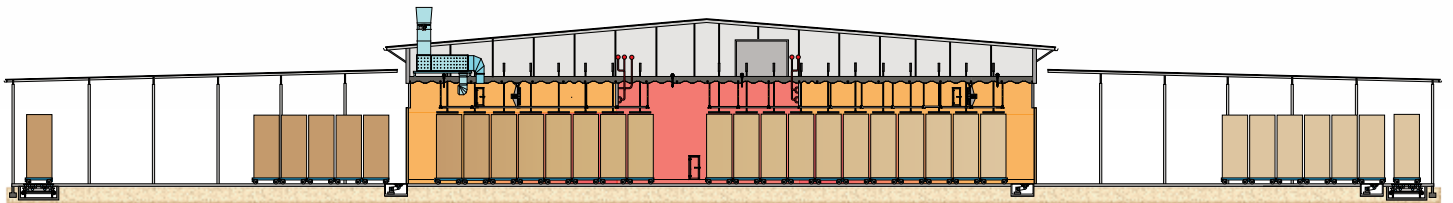
In a progressive kiln, each batch goes through precisely the same drying process and conditions, which is why the drying result is extremely consistent. Progressive drying kilns are always equipped with pneumatic pressure frames that ensure that the timber stays straight throughout the entire drying process.

Progressive kilns can also be fitted with a third stage. This conditioning phase improves the end result even further. Most modern progressive kilns also boast an advanced heat recovery system.

Progressive kilns are the most energy efficient of the various kiln types. They are always manufactured from stainless steel. In an automatic progressive drying kiln, conveyors handle moving loads into and out of the kiln.

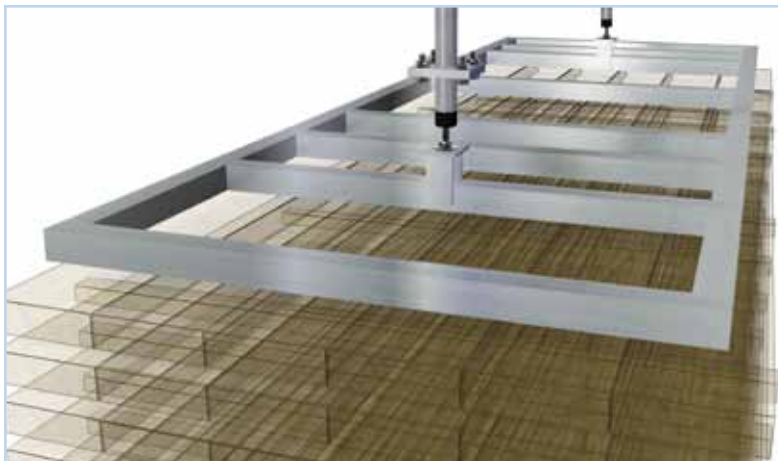


Kraslesinvest, Krasnoyarsk region, 2011,
12 lines, 400,000 m³/a



MEDIUM-SIZED FACILITIES

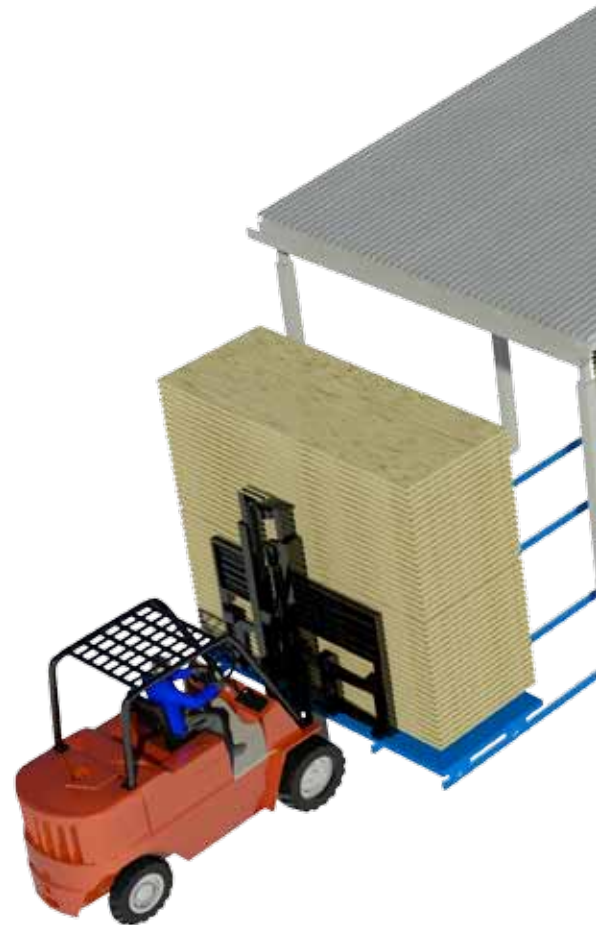
A combination of progressive kilns and two-stage through-drive compartment kilns is a flexible solution for medium-sized sawmills. The main timber dimensions of the mill are dried in the progressive kiln while the compartment kilns handle smaller customer-specific and special batches. In conventional solutions, the timber to be dried is loaded on carriages with a forklift. The system can be supplemented with pneumatic pressure frames, traverse car, and automatic load change.

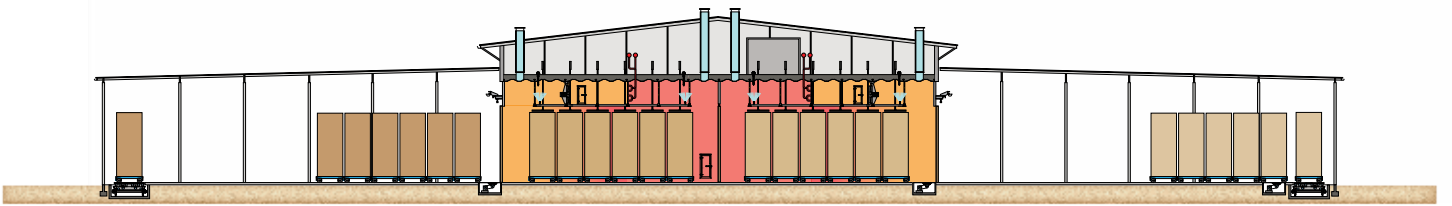
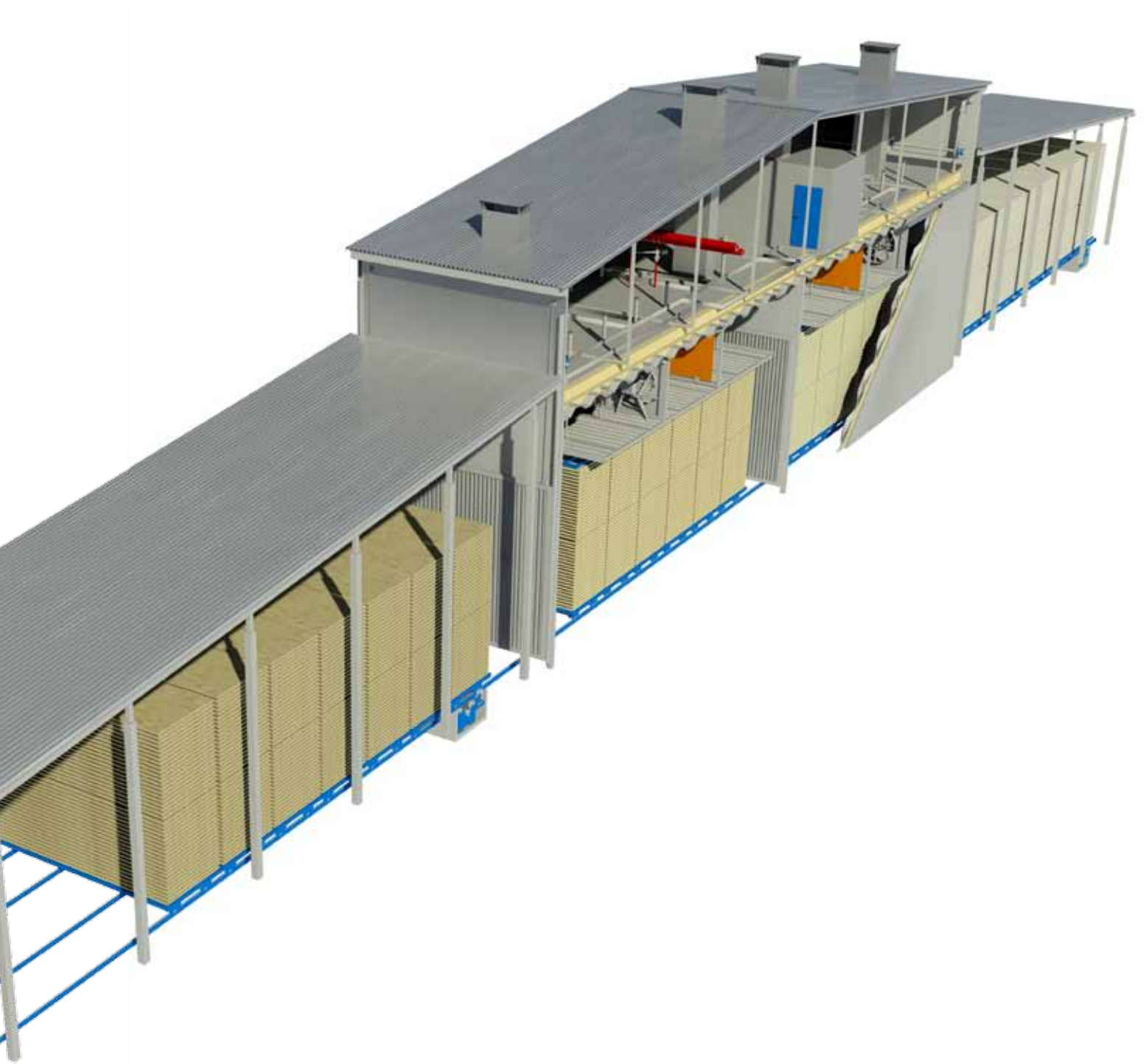


The pneumatic pressure frames ensure that the upper timber layers remain straight.



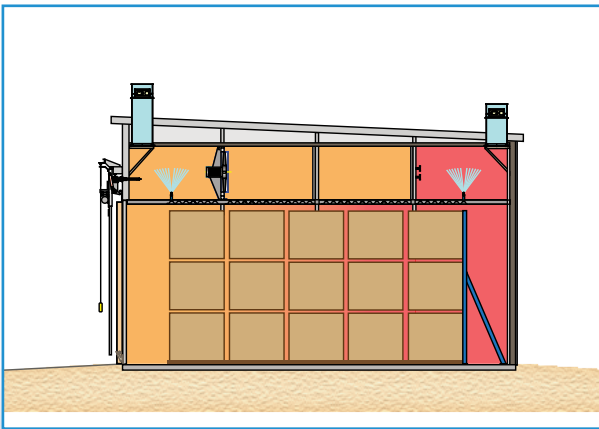
Kontiotuote, three two-stage compartment kilns, 40,000 m³/a





SPECIAL DRYING

Compartment kilns are the most cost effective solution for smaller capacities and special drying. According to customer needs, the compartments can be manufactured from stainless steel, aluminium, or concrete. Jartek's selection also includes pneumatic pressure frames for the aluminium chamber.



Forklift loaded 150 m³ compartment.



Igirna Tairiku, 2005, 18 compartments

ENERGY EFFICIENT DRYING



Pumps and valves with the ideal capacity ensure optimal efficiency.

MINIMISING ENERGY CONSUMPTION

At a sawmill, drying constitutes a significant portion of the overall electricity consumption. Jartek uses fans from the largest supplier in the world, which are specifically dimensioned for each purpose. The diameter of the fans is large, which results in excellent efficiency. As an option, we also provide fan cones, which further improve fan efficiency by several per cent. In addition, we recommend frequency converters with which air volumes and energy consumption can be adjusted to the optimal level in each phase of the drying process.

UTILISING HEAT ENERGY

The energy efficiency of traditional drying can also be increased by recovering energy from the steam released during the drying processes. If the use of low temperature energy for heating the facility has been taken into account in the engineering of the sawmill, waste heat can be used for the purpose extremely effectively.

Within the drying process, waste heat recovery can be utilised for preheating intake air. Jartek has developed unique recovery systems for both compartment and progressive kilns. Efficient sheet radiators are used in compartments, while the solution of choice for progressive kilns is cross-flow plate heat exchangers made from stainless steel or aluminium. Depending on the conditions, heat recovery can reduce energy consumption by up to 20–30%, which means that the pay-back time is only a few years but the environmentally friendly effects last for decades.

VERSATILE AUTOMATION SYSTEM

THE RESULT OF EXTENSIVE DEVELOPMENT, JARTEK'S PROPRIETARY CONTROL SYSTEM COMPRISES TRIED AND TESTED COMPONENTS. THE EASY-TO-USE USER INTERFACE RUNS ON A PC COMPUTER IN A WINDOWS ENVIRONMENT. THE ACTUAL CONTROL COMMANDS ARE ISSUED BY MEANS OF SOFTWARE DEVELOPED FOR THE SIEMENS S7 PROGRAMMABLE LOGIC CONTROLLER.

Jartek's control room software comprises two types of views: ones that can be used to monitor the status of all the drying units in graphical or numerical values, and ones that can be used to monitor and change the data of individual drying units.

PROGRESSIVE KILN AUTOMATION

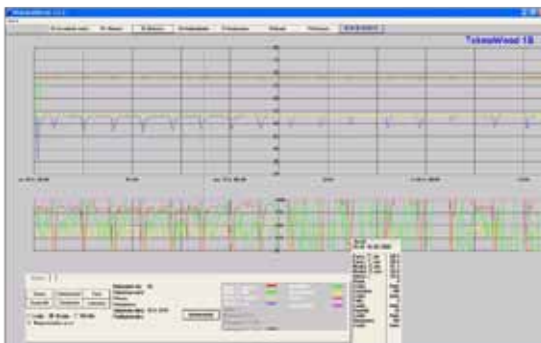
In conjunction with the load change mechanism, the control system of Jartek's channel dryers provides the opportunity for dimension change automation, which changes drying conditions in a controlled manner as a new timber dimension travels to the dry end of the channel. The automation system for progressive kilns includes a variety of functions that facilitate the use and maintenance of the kiln: for example, opening the top hatch of the A section activates the exhaust fan.

COMPARTMENT KILN AUTOMATION

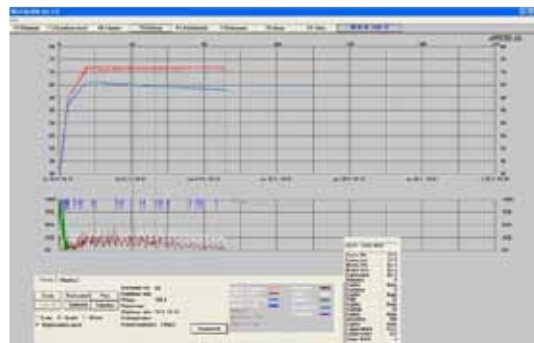
In a compartment kiln drying schedule, each stage can be assigned with an individual fan reversal interval, which enables accelerated reversal during the first stages, thereby heating the entire batch more evenly. Also, ventilation, moisturising, air humidity adjustment, and air circulation speed can be adjusted for each stage separately, in addition to air temperature and wet temperature adjustment. An extensive selection of schedules enables them to be customised for each different timber type and climate condition, for example. This ensures constant drying quality throughout the year.



Remote operation and support are a flexible part of the Jartek control system.



The trend files of the progressive kilns store the values for each week, so that the desired settings and information are always easy to find.



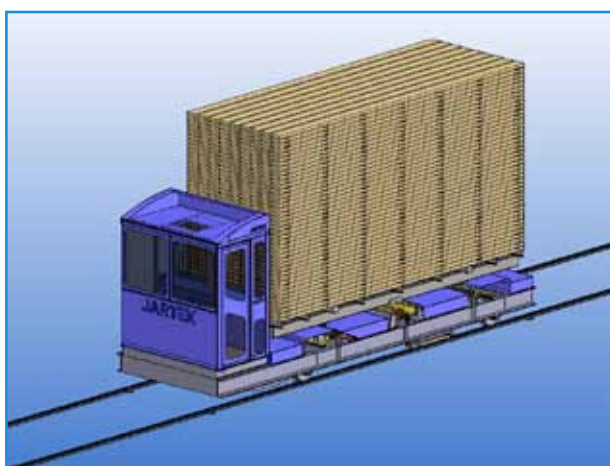
The trend data for compartment kiln batches is stored in individual files, including information concerning alarms triggered during the drying of a batch.

MODERN LOGISTICS

In smaller drying facilities, loads have traditionally been moved with forklifts, which handle the transport, loading, and unloading of the timber. The filling and emptying of a drying kiln always requires a forklift and a driver.

In modern facilities, the entire production process is "closed", and all load transfers are handled with conveyors. Loads are transferred from furring to drying on traverse cars that carry the timber in a longitudinal orientation. A conveyor moves the loads from the traverse car onto the kiln conveyor,

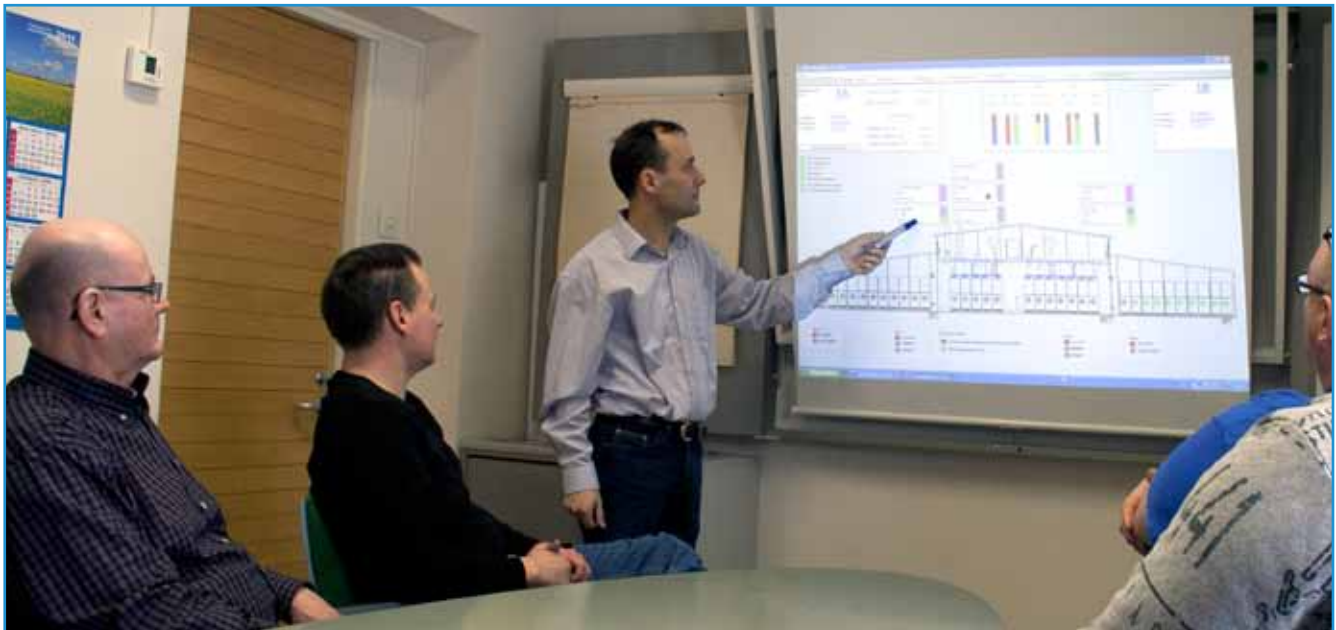
which takes the loads automatically through the drying process. At the same time, the conveyors can be used as a buffer where the necessary amounts of timber can be stored, for example, for drying over the weekend.



THE BENEFITS OF A CLOSED CONVEYOR SYSTEM:

- Low operation costs (energy, labour, maintenance)
- No quality loss in the transfer
- The dried timber is straighter, as the loads do not bend on a level carriage
- Better work safety compared to constant forklift traffic
- No problems with snow
- Works perfectly in extremely cold weather; no more problems with icy yards
- Short payback time for investment

FROM ENGINEERING TO TRAINING



Jartek's standard of high quality begins with manufacturing. Our experienced supervisors and installers ensure the quality of each process phase. A Jartek delivery always includes a comprehensive training programme. We also provide turnkey kiln deliveries.



Quality production with experience

EFFORTLESS MAINTENANCE

Robust structures and high-quality components minimise the need for maintenance. By observing the extensive service instructions, customers can easily perform minor maintenance themselves. You can also save resources by completing a maintenance agreement with us.



INCREASED QUALITY AND CAPACITY THROUGH MODERNISATION



Many times, our customers have been able to meet stricter requirements by modernising their old kiln. In some cases, renewing the automation is enough, whereas in others, it is feasible to maintain the basic structures of the old kiln and replace the technology.

MODERNISATIONS CAN YIELD THE FOLLOWING BENEFITS:

- By means of modernisation, the service life of an old kiln can be extended and the facility can be brought up to meet stricter requirements.
- By renewing the kiln automation, you can ensure the availability of spare parts and enable more accurate monitoring of the drying process.
- By replacing the radiators, doors, fans, or ventilation equipment, you can save energy and improve drying quality as a result of eliminating uncontrolled air leaks.

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