NORDIC LINE

STAINLESS STEEL KILNS

KATRES
Drying Technology

Nordic Wood is special and requires special Dry Kilns.

We have taken note of this and developed a series of fully automatic Progressive Kilns and Compartment Kilns, designed for the tough conditions in sawmills located in Scandinavia, around the Baltic Sea, Canada and northern Russia.

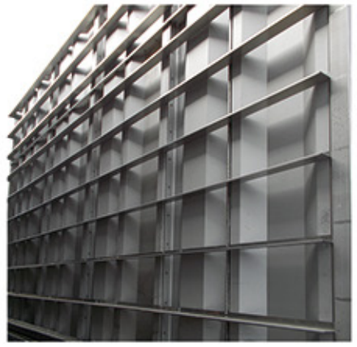
Broad Knowledge provide optimized Solutions.
Our collective experience within the company ranging from Wood research Institutes, practical wood drying out on the sawmills, through Consultants, Sawmill Technicians and Dry Kiln Suppliers in the Nordic region, as well as from the rest of Europe. We have massive and broad Knowledge of drying of all types of wood on the Planet. From our own Siberian Spruce to South American Radiata Pine. From European Beech to North American Oaks, as well as tropical Woods in Africa and Asia. This knowledge, coupled with the essential experience of what is high priority on your Production units, is the basis for how we deliver our Dry Kilns.

A Dry Kiln must be Energy efficient.
It starts with the design and production. Each facility is energy optimized for each client's circumstances. We carry out the entire operation, from design to manufacturing process, through the purchase of materials and manufacturing methods, as well as quality control. With solar panels on the roofs of our Production Facilities, we are self-sufficient in Electricity. It's just part of our Environmental Efforts.

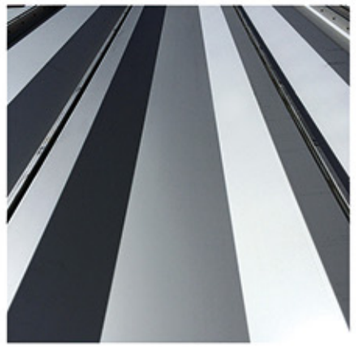
Product Development is a continuous Process.
Thanks to our design department beeing located on the same site as our production facilities, all development is done in House. Theories are tested directly in practice in our assembly halls before delivery. It makes you to feel secure in that our product development is done under our own roof. Not in your production. Everything to shorten your lead times from order, until full production is achieved.

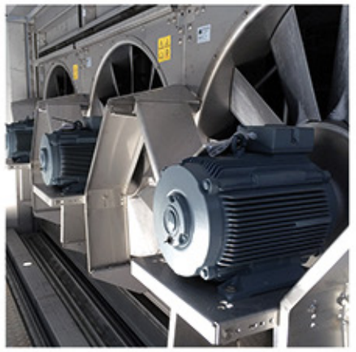
We own all our own properties and production facilities, where all manufacturing takes place. Own production cuts lead times and costs for you. It is not only practical, it provides financial stability as well.

We have full control from concept to delivery of finished product. For you this means that you get a First-Class Facility with the highest quality at the lowest possible price.







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FULL SERVICE

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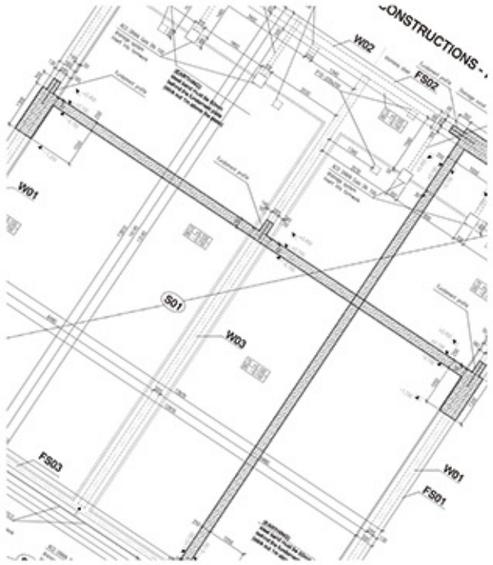

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OUR BUILDINGS

are strong, tight and Corrosion-Resistant. Our Building design is newly developed with many years of experience in construction of similar buildings. Both in the role of Supplier as well as Purchaser.

Therefore, as an Example, we are using only good quality Stainless Steel in Duplex Quality for our Framless Building Construction. Wall and Ceiling Panels are self-supporting and serves both as structure and climate shield. The High-Quality raw material is delivered directly from the Steel Mill in Avesta on rolls and are then processed into a high quality building concept, that is unparalleled in the Industry. Fixtures and fittings are designed with a focus on high serviceability at the facility and long life for your investment. We have full control of the delivery.

YOU GET A DRYING PLANT

MADE OF SUPERIOR MATERIALS AND WORKMANSHIP FOR A LOWER PRICE.

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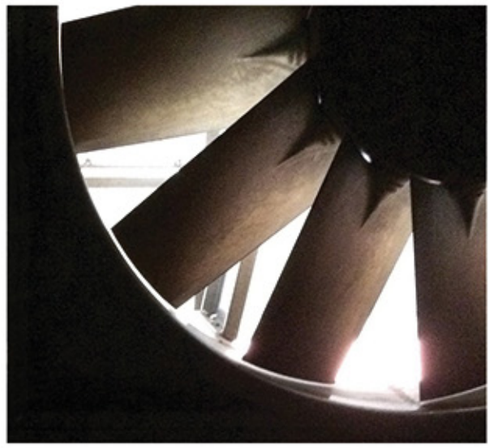
AIR AND HEAT

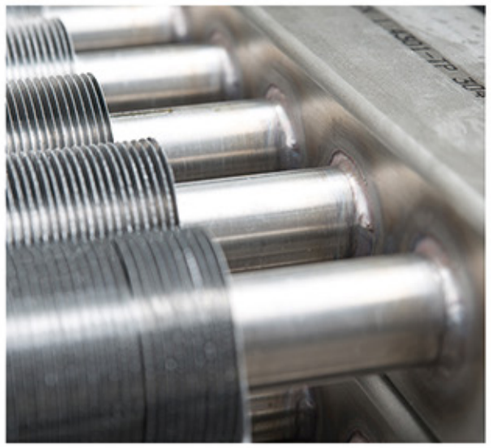
The additional Cost of using the best possible Technology is paid back after short-term use, and then your Savings can be seen at the bottom of the Income Statement. Year after year.

The motor in the drying process circulates air and heat. The circulating air in the dryer has several tasks. When air blows through the heating coils, it gets heated up. When the heated air blows through the timber stacks, it is transmitting energy to the timber, which is beeing used for evaporation of water. The air also removes the evaporated water from the wood surface. The energy beeing used for evaporation of water comes with a price.

Energy-saving motors are self-evident in our installations. Ac drives are beeing used on both pumps and electric motors, flexible control system allows precision control of vital components. Etc. Our flap and pressure frame solutions guarantees that most amount of air volume is beeing active in the process. Without a proper seal around the wood stacks, the processed air passes the timber to no avail, moreover disturbing the measured values given to the control system.

New research in fluid mechanics is behind how we design installation of our heating- and air installations. Here is everything weighed up. Both on the air and water side. From air resistance thru the heating coils and wood stacks, to liquid resistance inside the coils and pipe system, as well as the building‘s design itself.





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WE LIKE TO TAKE THINGS A LITTLE BIT FURTHER.

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SPRAYING SYSTEM

Every little designed stitch counts. A correctly sized spraying system secures your drying quality. We act and behave accordingly.

A CORRECTLY SIZED SPRAYING SYSTEM SECURES YOUR DRYING QUALITY.

To deliver crack- and stress-free timber to your customers, your dryer must be equipped with a spraying system that delivers the right volume of water at the right temperature, relative to the batch size loaded in the kiln. This is verified in research. Inside the dryer, it is all about the water particles having low liquid content in relation to their surface, and that temperature of water is above the dew point, so that they can evaporate and do some good for the drying process before they end up on the floor. Or on the timber. Outside the dryer, it is all about keeping systems and equipment spared from pressure spikes, as well as keeping the valve seats clean, for a reliable continuous function. Every Day.

SIZE MATTERS

The heating process must be done with a carefully regulated psychrometer difference, so that the drying power of the air is kept minimal before the timber has reached its plasticity level. Not until then we can begin to push harder with a harsher climate.

To achieve this, the water particles must not be too large. A large water droplet ends up on the floor before it evaporates. Well on the floor it does no good for the process. A cold drop of water makes the air around it condense on its surface, the droplet grows and ends up on the floor. With the right capacity and sizing of your spraying system, your conditioning phase can be shortened, because you quickly reaches a higher wet temperature level, where the conditioning of wood is much faster.

The high pressure pump is frequency controlled to conserve energy and provide the right volume of water at different stages in process. The soft start also reduces the pressure surge in the piping before and after the pump. In addition, the system that deliver the water fog has to have an unquestionable reliability. Through a clever and well thought out system we can ensure the water supply to the dryer, even if an accident should occur, stopping a pump or the flow through the heat exchanger.

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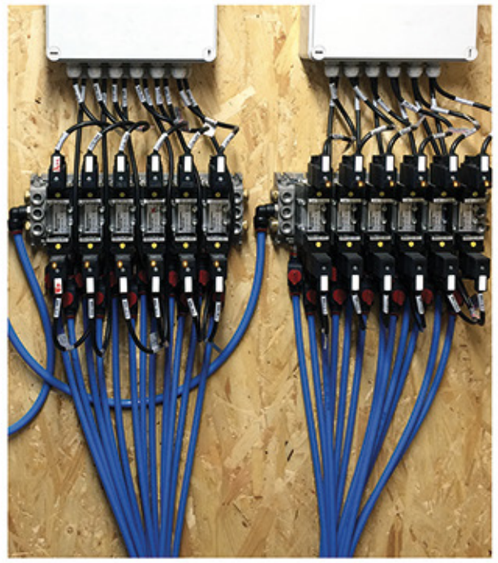
PRESSURE FRAMES

The drying capacity is not just a figure at the end of the quotation. It relies on the dryers ability to deliver maximum performance, every day. Week after week. Year after year.

Producing straight timber to our Customers is one of our most important tasks. It is necessary if wood shall keep its position as leading building material on today's demanding Market. At KATRES we take this seriously by equipping our Kilns with Pneumatical Pressure Frames, as an Option from our broad a'la Carte Menu. By using drying climates well over Plasticity Level and at same time adding pressure on top of the stacks during entire Process, we are causing permanent deformation in cell structure, giving you straight and stress free timber, happy Customers and higher Margin as final result.



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CONTROL SYSTEM

Decades of Experience in various Drying Cases worldwide, have been built into our newly developed Control Systems for Dry Kilns, Heat Treatment Plants and Belt Dryers.

A CONTROL SYSTEM MUST NOT BE LIMITING

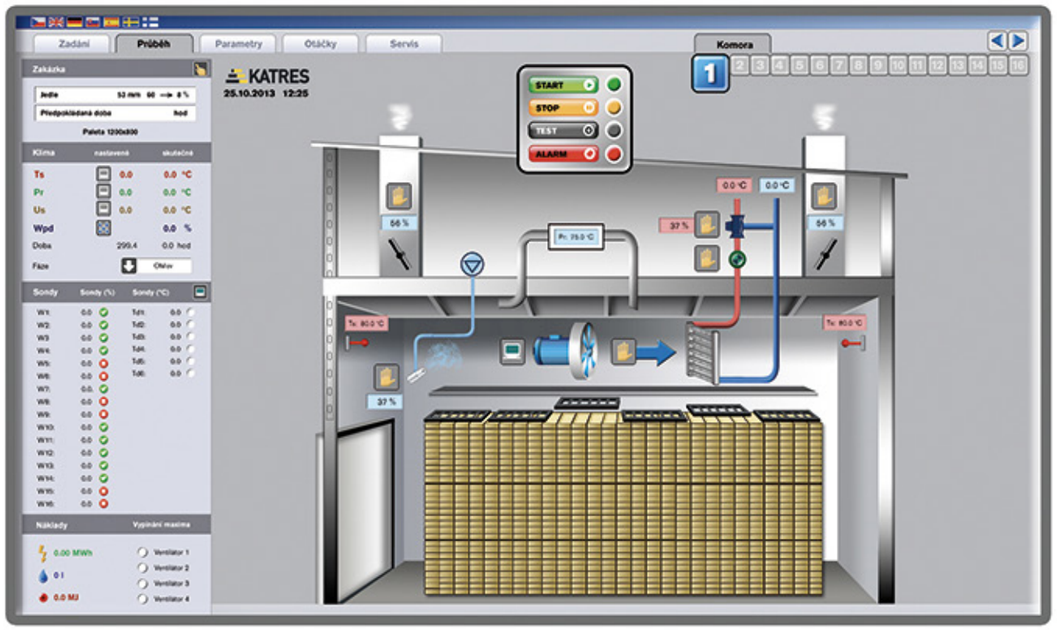
Our Control System is developed based on the latest Programming Languages from Siemens TIA, or AMAP. We have used the latest Research showing how People perceive Information on Displays. It makes it easy, clear and logical to work with for you as an Operator.

For us, it provides all the desirable flexibility in Programming to ensure that all future Developments and Functions within the Drying Field can be embedded. For you it gives you the nice Feeling of having a highly stable and reliable Control System that gives you the Information about the Process that you want, and is prepared for the Future in many Years to come.

Decades of Experience in various Drying Cases worldwide, have been built into our newly developed Control Systems for Dry Kilns, Heat Treatment Plants and Belt Dryers. Drying schedules can be simulated forward in our Program Generator, you can use the empirical Application, or use the Feedback from the Process to generate the Climate in the Dryer during Operation.

NORDIC KNOW-HOW

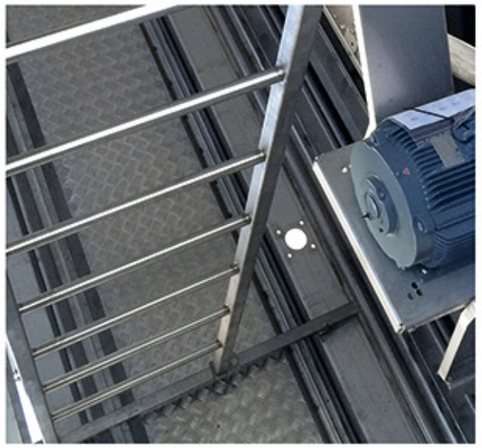
Nordic Know-How has been mixed with European. Experience of Hardwood drying has been mixed with the Experience of Nordic Softwood. The latest Advances in Visualization Technologies have been implemented in our Monitoring System. Smart Communications Solutions simplify Connections both internally and externally at the Sawmills, from Home Computer or your Hunting Lodge. With simple movements you can redirect controlled SMS Alarms to the correct Hotline. Remote Functions make it possible to control Kiln Doors and Pressure Frames from the Forklift or your Pocket. Service Functions are checked comfortably in Place inside the Dryer via your Tablet or Smartphone. The List goes on. We have put a lot of Energy to make your everyday Life easier and more leisure. And not least, Safer. Ask for a Demonstration next time we meet. Anywhere.



Maximum emphasis has been used to make our Kilns safe to work with, for us visiting. Also our impact on external Environment has been devoted great Energy. It is only when you develop a Concept from the beginning, with this as a Criteria, it comes right up. All possible Situations we can think of have been tested with Risk Analysis and designed to minimize the Risks. For example, our built-in Fall Protection for the Kiln Doors, for both the Progressive Kilns and Compartment Kilns. And our fixed Guides that facilitates Service on Motors and Fans. Or our removable frontal anti-collapse Device, which saves both Human Lives and Kiln Doors.

All access Doors are equipped with fixed Ladders for easy access to the Machine Level. Obviously, they are also provided with Switches which switch off the Process when opened. All Sensors can be accessed from the Attic and can be serviced or replaced during operation, without the Crew having to be exposed to the Drying Climate. The same applies for the Press Frames. They can be blocked both mechanically and in the Software at the Attic, making it possible for Cylinders to be serviced during operation. Not to mention our smart Sensors indicating that the entire Press Frame is in Upper Position before feeding the Kiln. Not only Cylinder Piston. Obviously they are located on the Attic, for easy access.

If you accidentaly become trapped in the Dryer, an Alarm Sensor will be activated, that shuts off the Process and opens up the Kiln Doors.
All KATRES´s Dry Kilns are of Course silenced.



Drive-through kilns

To increase the availability and flexibility in plant There are the Kilns with drive-through transportation. The system becomes more efficient as the kilns can be built narrower and thus reduce leakage air volume. More air circulation becomes active in the process.

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www.katres.cz

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