



**Biomass solutions for
wood industries**



Continuous flow biomass dryer

The **Säätökuivuri** continuous flow biomass dryer can quickly dry large quantities of woodchips. To do so, a huge, heated airflow is pushed through a layer of biomass between two conveyors.

The hot air can be generated by a **Säätötuli** biomass hot air generator or by any other hot air source like residual heat from a boiler plant or a process.

The dryer can be sized to fit the customer's needs for optimal production numbers and investment.



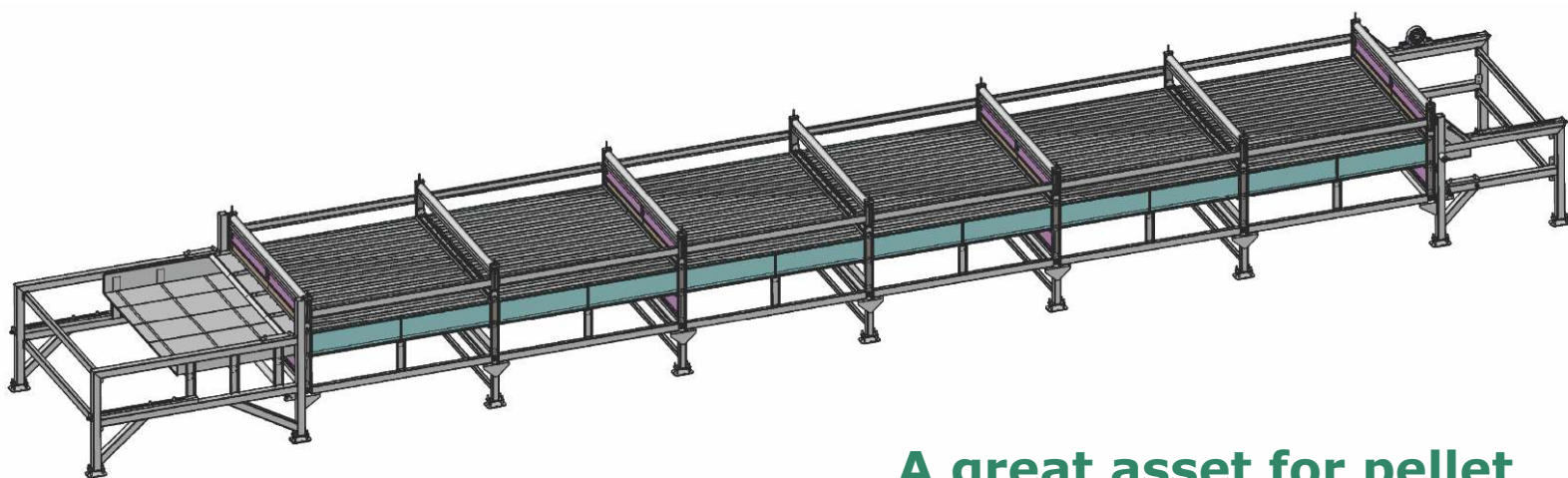
An innovative concept

The continuous flow biomass dryer dries woodchips or any other biomass with a similar particle size. Biomass goes through the dryer between 2 conveyors.

To reduce energy losses to a minimum and increase efficiency, the dryer is surrounded by insulated sandwich panels. Its modular design allows to decrease transport and installation fees, by removing the need of a crane during installation for example.

Biomass is loaded in a hopper. The drying section is divided in three parts where hot air is blown. Air in the middle part is blown in the reverse direction. An extraction fan (approximately 8,800 cfm) is added to the first part of the dryer since the maximum of humidity is released in that part. Dry biomass is transferred to a 12-meter-long conveyor (maximum of 38° rising slope)

The desired final moisture can be selected in the control panel. The conveyor's speed will be adjusted in real-time depending on the available heat energy to obtain the desired moisture content. Air quantity and temperature will determine drying capacity.



A great asset for pellet and biochar production

Example of production speed with a Säättötuli biomass hot air generator

The Säättökuivuri continuous flow biomass dryer connected to a Säättötuli 500kW (1,706,000 BTU/hr) hot air generator can dry 26 m³/h of wood from 50% to 25% moisture content.

During that same time, the hot air generators will burn 0.7 m³ of woodchips as fuel.

This means that 8.3 tons of green wood will be converted to 6.2 tons of wood with 25% moisture per hour.

Example of production speed with 2 Säättötuli biomass hot air generators

If the heat input is doubled, the Säättökuivuri continuous flow biomass dryer can dry 38 m³/h of woodchips from 55% to 5% moisture content.

During that hour, the hot air generators will burn 1.4 m³ of woodchips as fuel.



Biomass hot-air generator

The biomass hot air generator was jointly developed by **Säätötuli** and an expert in drying technologies. It combines a high-performance air-to-air heat exchanger and the Säätötuli biomass burner.

Säätötuli biomass burners are very versatile. They can burn efficiently several types of solid fuels like **pellets**, **woodchips** and even **bark**. The only limitations are the particle size and moisture content. Ideally, average fuel mixture's moisture content should be 35% or lower.

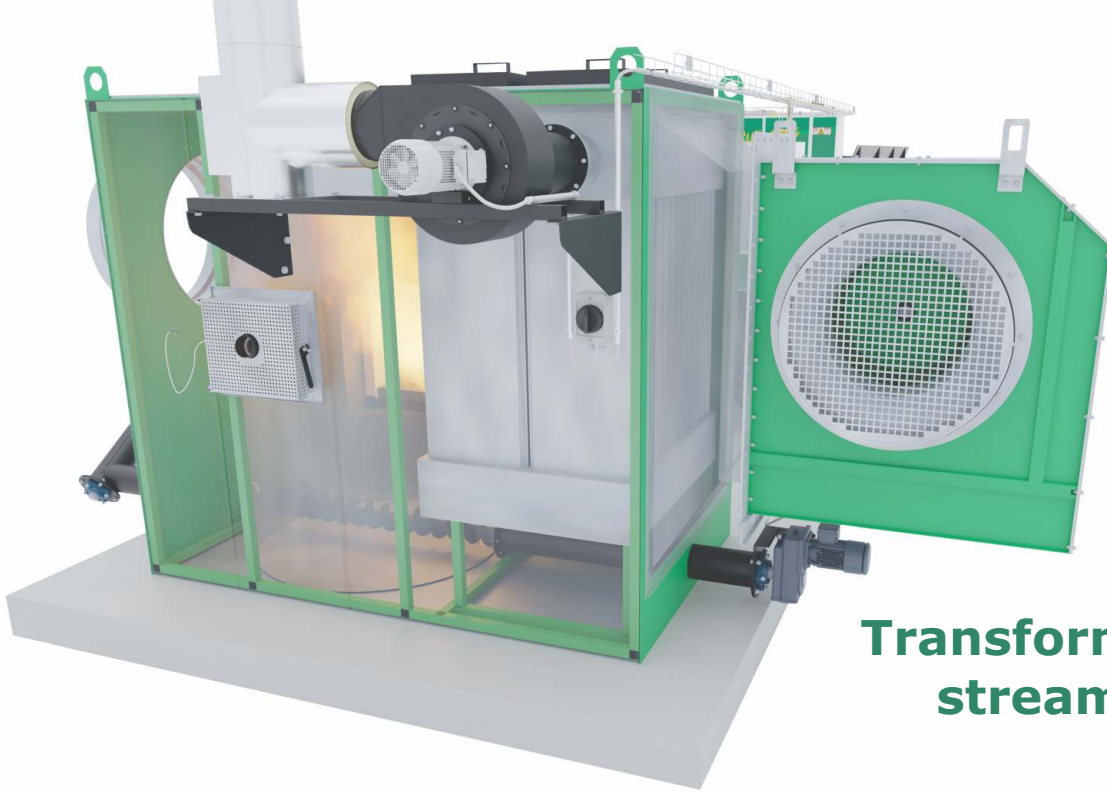


Säätötuli's biomass hot air generators are available for outputs ranging from 200 kW to 650 kW (685,000 BTUs/hr to 2,220,000 BTUs/hr).

Several generators can be combined to increase heat output. Generators can either be combined in parallel for a maximal air flow or serial to increase air temperature (up to 140°C / 284°F). The transition between serial and parallel modes can be automated.

When using multiple units, a central fuel silo can be installed.

Hot air for kiln dryers, building heating, etc.



Transform your residual streams into heat

Biomass hot air generators have been used in many applications: building heating, underground mine heating, seaweed reprocessing plant, agricultural grain dryers...

Biomass heating systems use low-cost fuel but are CAPEX intensive. A **partial conversion** to biomass or a **dual-energy** system is often justified in this type of project. A thorough understanding of the heating process and its specificity is important to design the best cost/efficiency yield. For example, **kiln driers** often have preheating cycles that are very energy-intensive but only last a few hours.

You can find on our website an example of a study on a wood dryer whose total heat requirement is 3000kW. A partial conversion of only 1000kW to biomass would represent a third of the heat peak but would switch almost 80% of the drying cycle total energy needs to biomass.



If the moisture content of the available biomass fuel is too high, the hot air generator can be combined with a biomass dryer. The dryer will use a small part of the hot air to dry the fuel before automatically transferring it to the generator.

Picture of a containerized hot air generator combined with a biomass dryer in a shipping container.



Hot water boilers

Säätötuli offers a range of biomass hot water boilers up to 1500kW (5 million BTU/hr). To increase output, two boilers can be combined.

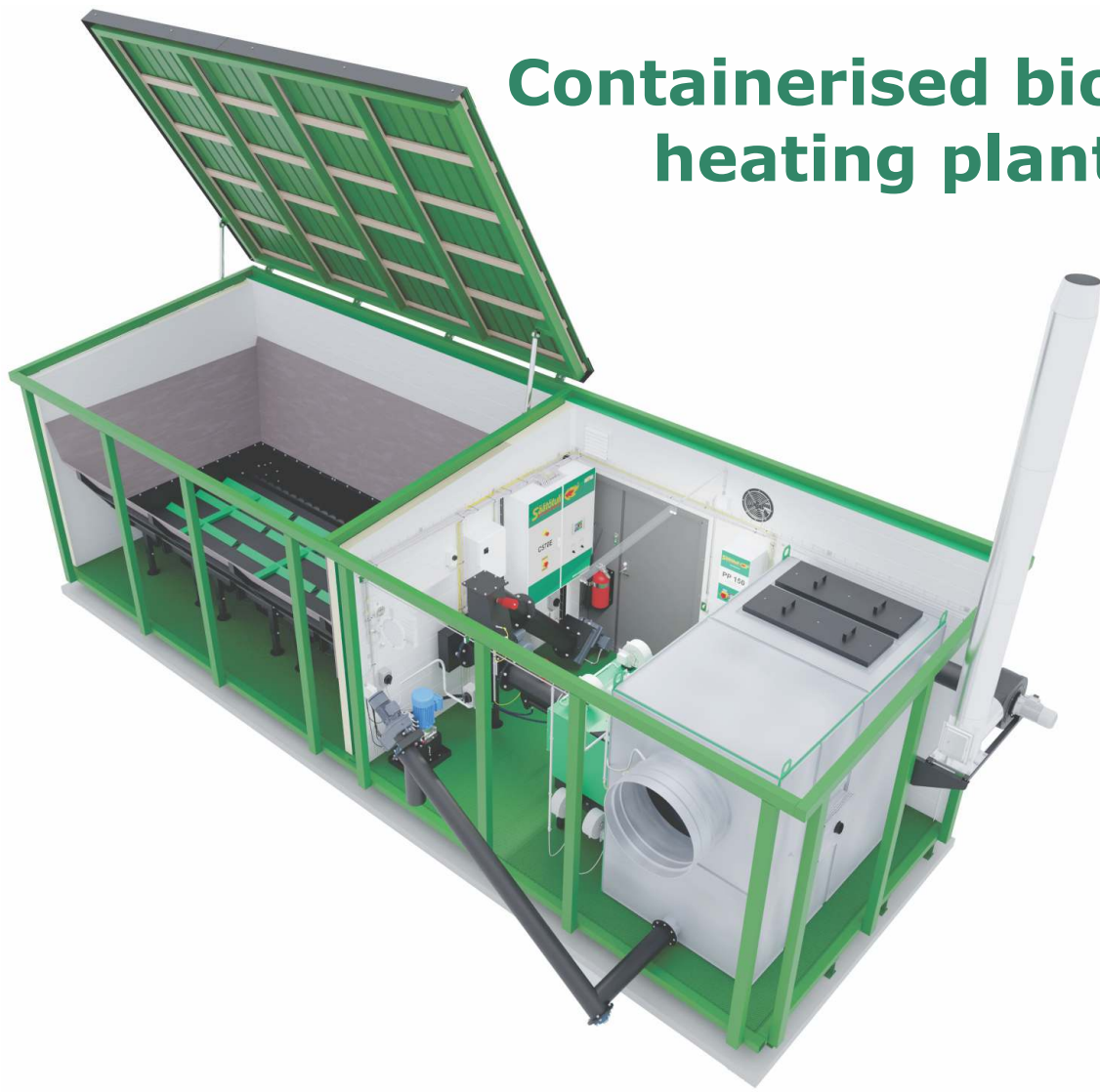
In collaboration with its manufacturing partners, Säätötuli can supply pressurized boilers manufactured in Canada with a CRN (Canadian Registration Number). Atmospheric pressure systems are also available.



Hot water boilers can be mounted on a skid with most mechanical and electrical installation work done at the factory. This facilitates installation on site and ensures an easy commissioning as the unit is tested before delivery.

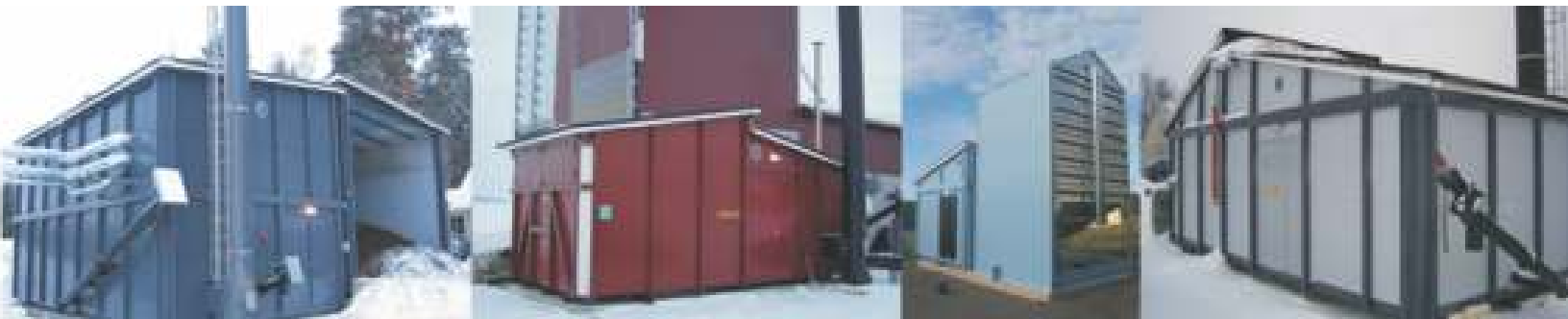
The hot water boilers can use all type of residues from the wood industries as long as the particle size and humidity respect the specifications of the boiler (depending on the output).

Containerised biomass heating plants



Säätötuli was one of the pioneers in the field of containerised biomass boiler plants. The first unit was commissioned in 2003 and over 300 units are in service. Säätötuli's containerized boiler plants are available for different outputs. They can host a hot air generator as well as a hot water boiler.

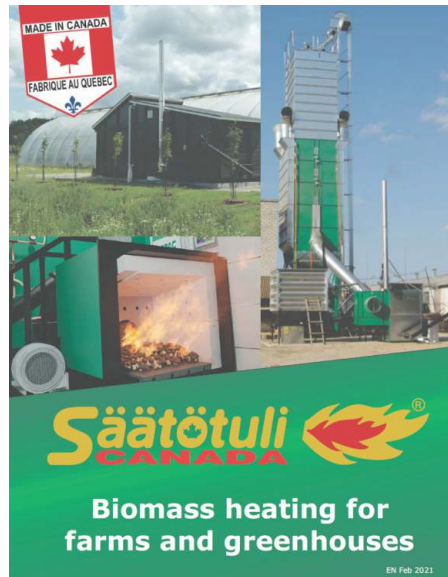
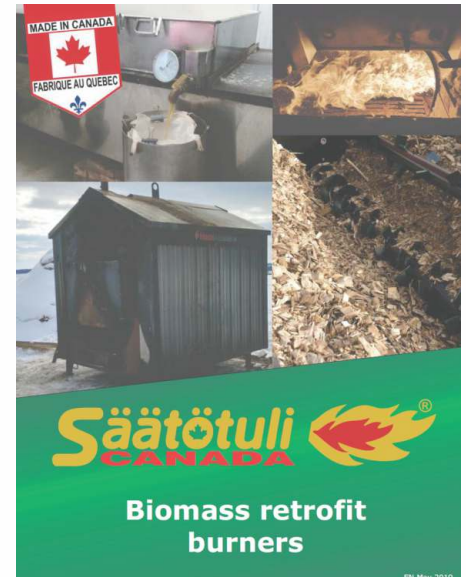
Containerised plants are made with a steel structure and surrounded by fireproof sandwich panels. Installation is easy and fast and only requires a solid installation pad. These modular solutions are commonly used by green heat contractors who sell the produced energy to their customers.



Find more information on our website:

www.saatotuli.ca

Other available brochures:



Säätötuli
CANADA

Säätötuli Canada Enterprises inc.
5720 rue Barré
St. Hyacinthe, QC
CANADA, J2R 1E4

Phone: 1 450-253-1567
www.saatotuli.ca