

The Liekkivahti Cooperative at Bioenergy Centre of Jyväskylä University of Applied Sciences



The Jyväskylä University of Applied Sciences in Saarijärvi has purchased bioheating container for education, heating and development purposes. The heating container is transportable and can be used in training and in exhibition events. The heating is carried out by a students' cooperative Liekkivahti.

A cooperative of students producing heat

The agronomist students specialised in bioenergy at Jyväskylä University of Applied Sciences founded the Liekkivahti Cooperative in the spring of 2005. The cooperative is in charge of the procurement of wood fuel and the production of heat with the heating container of Jyväskylä University of Applied Sciences. The cooperative paid wages according to the amount of produced energy, indicated by an energy meter. The members of the cooperative gain

valuable knowledge and experience through the activities of the heating cooperative, which they can utilize in their studies and later in working life. In addition to that heat production can provide additional earnings to the study grant.

The specially equipped bioheating container of Kolkanlahti

The Bioenergy Development Centre of Jyväskylä University of Applied Sciences operates in Kolkanlahti. The Bioenergy Development Centre utilises the heating



container also for other educational and developmental purposes within the bioenergy sector.

One special feature of the heating container is its portability. It is equipped with a transfer platform line, and can easily be disconnected from the heating system. Portability makes it possible to organise training and exhibition events with the container basically anywhere. To enable portability, the container also includes a heat exchanger, and can thus be connected to external heating systems as well.

The operation of the equipment can be demonstrated even without actual heating system load because of the condenser is included in the system. The heating container is equipped with remote control and alarm systems, so that the person in charge of operation can monitor the situation and make changes via the Internet.

The bioheating container is used to heat the buildings and hot tap water of Vocational Education Institute of Northern Central Finland (POKE). The container produces basic heat, max. 200 kW, while old oil boilers produce peak loads up to 500 kW. Moreover, the oil boilers serve as a backup system during the break-downs of the bioheating container.



Wood chips produced by the School of Forestry and the Bioenergy Development Centre

The members of the Liekkivahti Cooperative have independently procured the whole tree chips and stem-wood chips to be used in the bioheating container. The cooperative purchases transport services for chipping and wood chips from local entrepreneurs. The wood chips are delivered to the chip silo (20 m³) of the bioheating container on a tractor trailer. The wood chips are transferred with bar dischargers and feeding screws from the silo to the fixed-grate burner head. The bioheating container has been delivered to Kolkanlahti by Ariterm Oy, whose Biojet stoker burner and 200 kW container are controlled with the digital Tiimi control system. The accessories of the bioheating container also include residual lambda control for combustion gases, in order to facilitate the control of the combustion process.

Cooperative in brief

Year of foundation	2005
Heating premises	The buildings of POKE (Vocational Education Institute of Northern Central Finland) in Kolkanlahti, Saarijärvi
Boiler output, kW	200 kW manufacturer by Ariterm Oy
Annual energy production	650 MWh

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