Energy from miniature power plants

Volter Ltd. designs and manufactures miniature power plants producing heat and power. The container-based heat and power station is dimensioned to cover the energy needs of a farm, a housing community or a company.

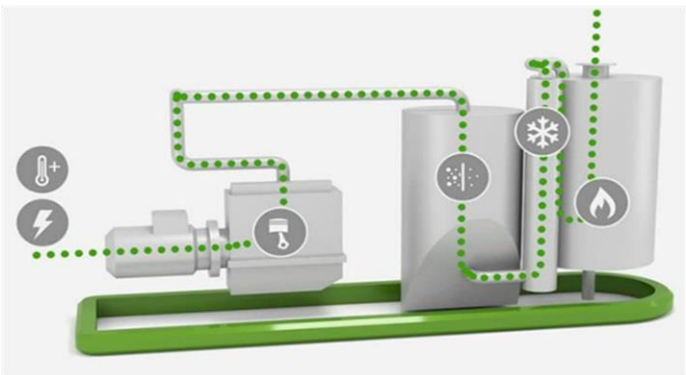
Volter manufactured the first device in 2010. As of now, the company has sold approximately 150 units across twelve different countries. One-third of these sales have been to UK, another one-third to Japan and the remaining one-third to the other international markets.

Volter plants produce power through gasification. Dried wood chips are led into a high-temperature gasifier operating at approximately 1000 °C, where they are heated and gasified with very little oxygen. The produced wood gas functions as a fuel in an engine that runs a generator to produce power. Warm water is produced as a by-product, which can be used for example for floor heating or in industrial drying processes.

After many years of successful development and feedback from customers on smaller Volter plants, the company has now introduced a new, more efficient device. One Walter unit generates electricity with a 50 kW output and heat with 130 kW output. The daily consumption of wood chips is 5,5 cubic meters (m^3). Several units can be linked together in order to scale up the energy system. With the new concept, the power output of Walter is 25% higher, service costs and emissions are lower, and general operation is easier.

The company offers two options for customers. Walter WP (Weather Proof) is designed to work outdoors, as a stand-alone unit. It is built in a container and can be purchased on a turn-key basis. It is a good solution for customers who do not have indoor space available for such an energy unit. If so desired, the stand-alone unit is easily moved to another location.

The Volt Factory concept is a small heat and power station, consisting of several Walter units. For example, a Volt Factory of ten Walters render 500 kW power and 1.3 MW maximum output.



Photos: Volter Ltd.

KEY WORDS

Gasification, wood chips, power, heat

COUNTRY

Finland

AUTHORS

Volter Ltd.
Jyrki Raitila (VTT)
jyrki.raitila@vtt.fi

DISCLAIMER

This Practice Abstract reflects only the author's view and the BRANCHES project is not responsible for any use that may be made of the information it contains.

DOWNLOAD

www.branchesproject.eu

CASE ASHIYU: TRADITIONAL JAPANESE FOOT BATH

Public bathing is part of traditional Japanese culture and *ashiyu*, a foot bath, is one variation of it. People can easily enjoy a warm and relaxing foot bath in the middle of a busy day for example on a street corner, railway station, rest area or a park. Even if only legs are soaked into the water, the whole body warms up through the veins in the legs, making *ashiyu* a really pleasant experience.

The Takanosu road station is a place where people come for lunch and to buy locally produced specialty products and souvenirs. In addition, the road station offers *ashiyu* for free for the visitors, giving an opportunity to refresh and relax between lunch and shopping. The water for the foot bath is powered by excess heat from the Volter 40 Indoor. The electricity produced by Volter´s combined heat and power unit is sold into the power grid.

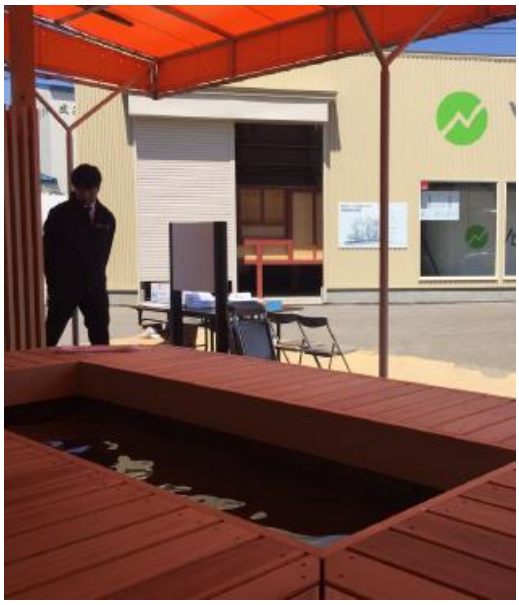


Photo: Volter Ltd.

Coordinator: Johanna Routa - (Luke) johanna.routa@luke.fi
Dissemination: itabia@mclink.it
www.branchesproject.eu

ABOUT BRANCHES

BRANCHES is a H2020 "Coordination Support Action" project, that brings together 12 partners from 5 different countries. The overall objective of **BRANCHES** is to foster knowledge transfer and innovation in rural areas (agriculture and forestry), enhancing the viability and competitiveness of biomass supply chains and promoting innovative technologies, rural bioeconomy solutions and sustainable agricultural and forest management.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101000375

THE PARTNERSHIP

Luke Luonnonvarakeskus · National Research Council of Italy Institute of BioEconomy Department of Biology, Agriculture and Food Science · VTT · University of Warmia and Mazury in Olsztyn · DBFZ · circe Research Centre for Energy Resources and Consumption · ITABIA Italian Biomass Association · MTK · aveBiom Spanish Biomass Association · UFZ · W-M ODR · BioEconomy Cluster