

Press Release

Vienna, 12th December 2019

First industrial heat pump in use at Wienerberger

- AIT demonstrated the first industrial high-temperature heat pump for drying processes in the Uttendorf brick factory/Upper Austria
- Recovery of industrial waste heat creates enormous potential for energy efficiency and reduction of CO₂ emissions

On December 11, 2019, the first industrial high-temperature heat pump was put into demonstration operation at Wienerberger Österreich GmbH, Uttendorf site, in Upper Austria. Until now, waste heat from industrial processes has usually been released into the environment completely unused. As part of the H2020 research project "DryFiciency", this specific heat pump technology has been developed over the past three years under the lead of the AIT Austrian Institute of Technology GmbH and a demonstrator has been integrated into the drying process. At Wienerberger AG's Uttendorf brickworks, the high-temperature heat pump is now being tested for the first time in a real industrial environment.

"Wienerberger and the AIT have been linked by a strategic partnership for five years. In the DryFiciency development project, a milestone was set in the direction of decarbonizing the brick industry," said Carlo Callegati, Head of R&D Operations and Engineering Wienerberger AG, on the occasion of the presentation of the high-temperature heat pump.

"In the future, heat pumps will be an essential element of the energy infrastructure, also in an industrial context. Demonstration projects such as DryFiciency show how industrial processes can be made more efficient by using waste heat and strengthen confidence in this new technology through scientific monitoring," says Wolfgang Hribernik, Head of Center for Energy at the AIT Austrian Institute of Technology.

The EU project "DryFiciency" was initiated by the research project "DryPump" funded by the Austrian Climate and Energy Fund. Managing Director Theresia Vogel: "Our energy research programme strengthens the domestic industrial and research landscape in the competition for EU funds. DryFiciency is a prime example of how innovations can be quickly brought to market by research. For rapid success in the decarbonisation of industry - a goal to which we have committed ourselves."

Using industrial waste heat instead of wasting it

Currently, a large part of the energy required for drying processes is lost in the exhaust air and contributes to the increase in climate-damaging CO₂ emissions. "To remove water from bricks or other products such as food, it has to be evaporated at 90 to 160°C," explains Stefan Puskas, project manager of DryFiciency at Wienerberger AG. At temperatures above 110°C, it has not yet been possible to use heat pumps to recover the waste heat. In the EU co-financed research project DryFiciency, a demonstrator has been developed over the last three years which shows that heat pump technology can also be used for industrial processes in the high-temperature range.

New heat pump technology for drying processes

In the brickworks of Wienerberger Österreich GmbH in Uttendorf, the first heat pump with a closed refrigeration cycle is now being used to convert industrial waste heat into usable energy. In the manufacturing process, bricks are first formed, dried and then fired. This process takes place in a continuous tunnel dryer, where the high-temperature heat pump has now been integrated. It uses hot water from the heat recovery of the dryer's exhaust air as a source and provides heat for the tunnel dryer. "Heat pumps are a real alternative to conventional gas burners for many drying processes," explains Veronika Wilk, scientific coordinator of the DryFiciency project and Senior Research Engineer at the Center for Energy of the AIT Austrian Institute of Technology. Compared to conventional gas boilers, heat pumps have the potential to increase energy efficiency by up to 80 percent, reduce CO₂ emissions by up to 75 percent and also cause up to 20 percent less production costs. "The technologies we have developed can be used in many industrial sectors, from paper, food and beverages to textiles and other chemical industries, and they can be integrated into existing plants," concludes Wilk.



AIT demonstrated the first industrial high-temperature heat pump for drying processes at the Uttendorf brick factory in Upper Austria with (from left to right) Carlo Callegati (Wienerberger), Stefan Puskas (Wienerberger) Veronika Wilk (AIT), Thomas Fleckl (AIT) © AIT / Schneeberger



First industrial high-temperature heat pump at Wienerberger Österreich GmbH at the Uttendorf site in Upper Austria in demo operation © AIT / Schneeberger

About DryFiciency

DryFiciency is a four-year EU research project in the Horizon2020 Innovative Action Programme (GA-723576). The consortium consists of 13 partners, including two research institutions, five SMEs, five large industrial companies and one industry association, and addresses the particular challenge that the resource- and energy-intensive industry currently generates significant amounts of unused waste heat. In some of these industries, energy and fuels account for between 20 and 40 percent of production costs and cause large amounts of CO₂ emissions. DryFiciency aims to improve energy efficiency by designing, building, testing and demonstrating high-temperature heat pump systems for these industries. <http://dryficiency.eu>

DryFiciency Project Partners

AIT Austrian Institute of Technology GmbH, Agrana Stärke GmbH, Bitzer Kühlmaschinen GmbH, Chemours Deutschland GmbH, European Heat Pump Association (EHPA), EPCON Evaporation Technology AS, Fuchs Europe Schmierstoffe GmbH, Rotrex A/S, RTDS Group, Scanship A/S, SINTEF, Viking Heat Engines A/S, Wienerberger AG

AIT Center for Energy

Information about the center: <https://www.ait.ac.at/energy>

Press contact:

Mag. Margit Özelt
Marketing and Communications
AIT Austrian Institute of Technology
Center for Energy
T +43 (0)50550-6302
margit.oezelt@ait.ac.at | www.ait.ac.at

Daniel Pepl, MAS MBA
Corporate and Marketing Communications
AIT Austrian Institute of Technology
T +43 (0)50550-4040
daniel.pepl@ait.ac.at | www.ait.ac.at