

Process INtegrated HEat pump Drying

Publieke samenvatting / Public summary

Aanleiding

The application of industrial heat pumps has been investigated for years with feasibility studies, market studies, cost reduction projects, barrier inventories. The Netherlands and ISPT with its innovation clusters have been active in creating pilot studies, communities and innovations. Despite all efforts so far Industrial Heat Pumps stay a promising sustainable and economic feasible proposition for mid and high temperature range which is only installed at a small group of Innovators. Given the latest developments of heat pumps (up to 160 Celsius), the price development of electricity versus gas and the climate agreement discussions, the time is here to accelerate the adoption by industry of the industrial heat pump application and reach out to the early majority group. The total potential is estimated in a recent study of TNO to be 24.6 GW, consisting of 4065 individual heat pump installations (549 in the early adopter group).

Doelstelling

In this project we want to accelerate this adoption of industrial heat pumps in the Netherlands by creating reference cases in two main industrial sectors of Food and Paper, define a new value proposition that includes less customization and integration effort for the market by defining integrated drying units as new product for the technology manufacturers of this project consortium and actively communicate this approach with the industrial community including technology manufacturers. In the project we look for a new balance between the application of standardized

Projectinformatie / Project information

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Algemene informatie / General information

Penvoerder / Secretariat

ISPT

Publicaties en materialen / Publications and attachments

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products versus customization of solutions, we try to shift the balance to a standardized or modular product by defining this new value proposition consisting of integrated drying/HP system and in parallel work on integrating heat pumps in existing processes. This is a new aspect not studied before and never addressed by a consortium that combines international large equipment suppliers with knowledge institute, end users, and innovation network organization.

Korte omschrijving

For an optimal design both technical and economic factors for the integral heat pump driven drying systems will be modelled and calculated looking to find the optimal balance between standardization and customization. Cost calculations for the different systems will be made which will enable to establish the economic feasibility and inter-compare the different designs. This project is the design step towards building the full-scale systems in follow up projects.

Resultaat

The project will create greenfield conceptual design packages for contact and convective drying of a full scale, fully heat pump integrated drying process, including a selection of main components, process flow diagram, control philosophy, and draft lay out drawings. Programs of requirements for pilot and demonstration systems will be made, one for a contact drying demo systems and one for a convective drying system and both for green and brown field situations.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.

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