

Royal FrieslandCampina dairy, The Netherlands



Figure 1: HighLift heat pumps currently installed Royal Friesland Campina, The Netherlands.

Summary of demonstration case

FrieslandCampina case study

- Dutch multinational dairy cooperative which is based in Amersfoort, Netherlands
- The world's largest dairy co-operative and one of the top 6 dairy companies in the world
- Their objective is to test steam production with HighLift heat pump for further applications within the FrieslandCampina group
- One third generation HighLift heat pump under commissioning in their Maasdam dairy summer 2024

“As a part of the refresh project RFC Maasdam aim to increase the capacity of the factory while reducing its CO₂ footprint. To achieve the goal RFC Maasdam added one HighLift heatpump from Olvondo.”



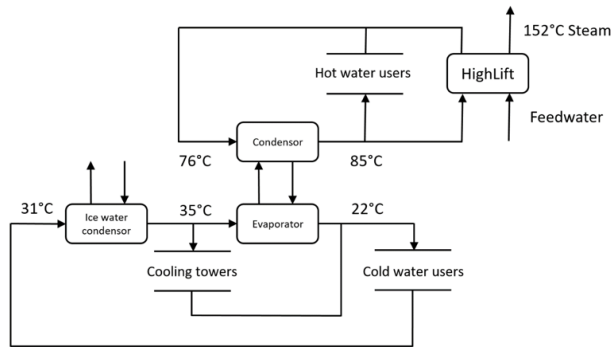


Figure 2: Replacing an existing natural gas boiler to cover base load

Operating experiences

- A natural gas boiler is replaced with a HTHP for the production of 4 barg steam
- A 48% reduction in energy usage and an 88% CO₂ eq emissions can be achieved.

Special learnings

- CO₂ reduction: Estimated CO₂ savings of ~1 300 tons p.a.
- Non-toxic medium: Helium used as working fluid
- Energy recovery: Energy savings of ~2.5 GW p.a.
- Cost savings: No need for steam produced by gas boilers.

FACTS ABOUT THE CASE

Installation year: 2024

Operating hours: 4 000 operational hours.

Working fluid used: R-704 (Helium)

Uses helium as the working medium
Not limited by evaporation or condensation temperatures

Compressor technology: Piston

System manufacturer: Olvondo Technology AS

Sector: Dairy

Performance in design point:

- **Heat source:** 85°C → 75°C (water)
- **2nd Heat source:** 31°C → 26°C (water)
- **Heat sink:** 105°C → 155°C (steam)
- **Heat supply capacity:** 5.4 GW
- **COP_{Heating}:** COP 2 losses taken into consideration

Investment cost: 1x HighLift heat pumps
800.000 € without cost for integration

Savings: Energy savings 2.5 GW p.a

Estimated annual CO₂ savings: 1.300 tons p.a

Link to webpage or report:

Highlift.olvondotech.no

Contact information

Olvondo Technology AS

✉ info@olvondotech.no

☎ +47 4650 8888

