

Case study

Intermalt Vietnam

Efficient grain malting with ammonia-based refrigeration and heat pump solutions



Photo credit: GEA

Interflour's Intermalt, Vietnam's largest malting plant, serves as a key supplier for the southeast Asian brewery markets. Facing the challenge of high ambient temperatures, the company needed an efficient cooling solution for germination and a sustainable heating alternative for kilning. With a customized ammonia-based refrigeration and heat pump system delivered by GEA, Intermalt has significantly reduced fossil fuel dependency and cut its energy consumption, saving approximately 2,000t of CO₂ annually from the heat pumps.

Key information

Client: Intermalt Vietnam Ltd, Vietnam

Supplier: GEA

Type of facility: Malt production

Refrigerant: Ammonia

System start-up: 2017

Requirements

The climatic conditions in southern Vietnam pose a major technical challenge for the production of high-quality malt: ambient air temperatures are consistently high, making it impossible to rely on natural cooling for the germination process. Instead, Intermalt required a reliable and energy-efficient system to actively cool and humidify the air that flows through germination vessels, ensuring optimal growing conditions for barley. In addition, the kilning stage of malting – where germinated barley is dried – traditionally relied on gas burners for heating. This dependency on fossil fuels not only drove up operating costs but also conflicted with Intermalt's sustainability goals. The company therefore needed a heating solution that would reduce fuel consumption and carbon emissions, while still guaranteeing the high-quality malt production demanded by regional breweries.

The solution had to integrate seamlessly with existing plant equipment, deliver consistent and controllable operating conditions, and ensure cost-effectiveness with a rapid return on investment.

Solution

GEA engineered a tailored cooling system using natural refrigerant ammonia, ensuring highly controllable germination conditions. Beyond cooling, GEA installed one of Vietnam's largest heat pump systems, upgrading waste heat from the cooling process to provide hot air for kilning. This dual system not only optimized efficiency but also delivered a fast return on investment through reduced energy and fuel costs.

Key benefits and features

- **Energy Efficiency:** Significant reduction in fossil fuel use and operating costs.
- **CO₂ Reduction:** Saving approximately 2,000 tons of CO₂ annually.
- **Sustainable Technology:** Natural refrigerant ammonia with ODP=0 and GWP=0.
- **Customer Value:** Reliable malt quality at competitive prices with improved sustainability.
- **Scalability:** Proven system ready for integration into Intermalt's planned expansion.

Technical data

Main components:

- GEA Grasso Screw Compressors

Contact

Tim Lennart Scheuermann

GEA Refrigeration Germany GmbH

Mail: TimLennart.Scheuermann@gea.com

Phone: +49 162 4929190

www.gea.com

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eurammon e.V. Seilerbahnweg 14, 61462 Königstein, Germany

Represented by: Rob Vandenboer, Chairman

Register of Association: Amtsgericht Frankfurt am Main, VR 16441

Contact: Phone: +49 6174 96947-19; E-Mail: info@eurammon.com

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