



## Retail refrigeration delivers improved energy efficiency and in-store comfort

Refrigeration accounts for 46% of total energy consumption in food retailing according to *Energy Management in Retail 2017*, a study carried out by the EHI Institute. Investment in refrigeration optimisation is therefore a key driver in energy improvement projects, accounting for as much as 45% of the total project cost.

Established in Warburg near Paderborn in Germany over 12 years ago, Naturkost Brinkman is a successful organic specialist retailer. In 2017, the company embarked on a store expansion programme to create additional retail space and to accommodate new customer and staff facilities.

The existing retail area was increased by 220 square metres to a total of 660 square metres, with an additional 200 square metres added to create new staff rooms and offices. The new concept store also incorporates a new bistro with seating area, kitchen and bakery shop and toilets.

A primary focus for the company was the adoption of new future-proof, reliable and innovating technologies to increase energy efficiency and to provide an enhanced shopping experience for customers. Constant modifications and updates to the HVACR equipment over a five-year period prior to the rebuild meant there was a mix of

refrigeration equipment and technologies in use, including plug and play units and cabinets using combined technologies. The store's refrigerated

counter was previously serviced by a condensing unit located in the warehouse, running on R-404A refrigerant. Cooling for the refrigerated shelves and freezer racks and cold storage rooms in the warehouse was supplied centrally through external units and a second condenser located outdoors, also using R-404A.

### All round solution

Naturkost Brinkman opted for Daikin's plug-in Conveni-Pack combined system. Designed specifically to meet the requirements of food retailers, Conveni-Pack offers a total solution which integrates refrigeration, freezing, air conditioning and ventilation in one compact unit, making it an ideal replacement solution. Integral heat recovery technology enables the redistribution of waste heat from the refrigeration units to the store's retail areas. Plug and play functionality assures fast installation, with high operational reliability offering low maintenance costs for the customer.

The new systems were designed and installed by Friedrich Hertel Kälte & Klimatechnik GmbH & Co.KG from Liebenau in northern



“The Daikin concept was a perfect fit with our desire to use the waste heat from the refrigeration cabinets. We considered other solutions, but Daikin's concept was ultimately the most economical”

Gerrit Brinkman, Naturkost Brinkman

### Project Requirements

- ☒ Air conditioning
- ☐ Control
- ☐ Air Curtain
- ☐ Air Purification
- ☒ Heating
- ☒ Heat Recovery
- ☐ Hot water
- ☒ Refrigeration
- ☐ Ventilation

Year of installation  
2018

### Installed Systems

- > Conveni-Pack
- > Daikin VRV IV
- > Daikin Roundflow ceiling cassettes

A Daikin VRV IV air-to-air heat pump system provides additional heating to the store, offices, social areas and toilets. A total of eight indoor units are connected to the VRV system. The rear sales area of the business and the seating area in the bistro are air-conditioned by Daikin Roundflow suspended ceiling cassettes with 360° air outlets. The office, the staff areas and the corridor are air-conditioned by Euroraster ceiling units which, thanks to their flat design, offer flush-fitting into a suspended ceiling panel. Additionally, a climate-control wall unit was installed in the warehouse.

Daikin's Intelligent Touch Manager controller provides a centralised user-friendly interface that allows easy adjustment of control parameters such as scheduling, temperature and operating mode. Remote controls in each room allow employees to modify temperatures within a given range to suit individual needs.

### Low noise systems

Due to the location of the store in the densely populated city centre of Warburg, there were stringent requirements in terms of noise protection. “We installed all the refrigeration equipment inside the building, in the newly created machinery room.

“Both Daikin systems - Conveni-Pack and VRV - are particularly compact and save space when they're installed.”

“Sound absorbers were also integrated into the machinery room ventilation system,” explains Franko Bitaris of Friedrich Hertel Kälte & Klimatechnik GmbH & Co.KG.

### Environmentally-friendly building technology

With the new refrigeration and air-conditioning technology in place, Naturkost Brinkman is well positioned for the future. The intelligent use of renewable heat pump technology and waste heat recovery makes it possible to use energy in a resource-saving way, focusing on the environmental aspect while saving on energy costs.

“We are very satisfied with the systems” concludes Managing Director Gerrit Brinkman.



Waste heat recovered from the refrigeration units is used to heat the store through Roundflow suspending ceiling units.



The Daikin Conveni-Pack and VRV systems are installed inside the building to minimise noise.



The Daikin intelligent Touch Manager controller ensures efficient operation and further reduces energy consumption.