Solstice

SOLSTICE® AND KMW EQUIP EDEKA WITH COST-EFFECTIVE AND SUSTAINABLE SOLUTION

CASE STUDY



When KONSUM Optimal-Kauf eG, the owner and operator of an all-new Edeka supermarket in the German town of Erxleben, required an environmentally-compliant cooling and heating system for the store, it called on the expertise of Limburg-based refrigeration specialist KMW. Powered by ultra-low global warming potential (GWP) Solstice® L40X (R-455A) refrigerant, the advanced hybrid system delivers maximum performance and efficiency at minimal cost, setting a new sustainability benchmark for Edeka supermarkets.

Image courtesy of ECR.

BACKGROUND

Sustainability is a key focus for Edeka, the largest supermarket group in Germany. Founded in 1898, the retailer has long been a pioneer and innovator in its sector, and today it invests in environmentally-friendly technologies that benefit both its business and the planet – and meet the all-important expectations of its customers.

Opened in November 2020, Edeka's state-of-the-art store in Erxleben exemplifies how the company is breaking new ground. To minimize energy consumption and related costs at the site, KONSUM Optimal-Kauf eG, the owner and operator of the store, decided to implement a KMW-designed, state-of-the-art hybrid refrigeration system powered by Solstice L40X (R-455A) refrigerant.

KONSUM selected KMW and Solstice because the companies met its requirements for a flexible, environment-friendly, and above all energy and cost-efficient cooling and heating system. Another factor was the companies' longstanding track record of success in food retailing.



Inside the Edeka Supermarket. Photo courtesy of KMW.

> Our hybrid system, in conjunction with Solstice L40X, demonstrates that it's possible to implement a refrigeration system that minimizes investment, operating and maintenance costs while also meeting an operator's climate goals. We're proud that this collaboration has resulted in a sustainability milestone for KONSUM and Edeka.
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> says, Reflecting on the success of the deployment, KMW Sales and Service Director Goran Simic

SOLUTION

KMW developed its R-455A hybrid refrigeration system in 2017 and since then has deployed it at Edeka and NP stores throughout Germany where it has demonstrated electricity and heating cost savings of 30% compared to conventional central refrigeration systems. The system's efficiency is boosted by recycling waste heat from the cooling and freezer units which is fed into a store's heat recovery system and used to heat the sales floor as required. In fact, the system's energy consumption is approximately 40% lower than plug-in refrigeration units without heat recovery.

The 1,000 m^2 implementation at Edeka Erxleben features 30 meters of display cabinets, 20 plug-in hybrid freezers, a cold room and a freezer room. All cooling and freezer cabinets are operated via decentralized hybrid modules that are installed on each of the refrigerated cabinets, meaning that a central refrigeration system is not necessary. Moreover, it results in the high reliability of the refrigeration supply since there can never be a failure of the entire system.

Due to the short piping lines, the store can be operated on just 20 kg of refrigerant. The system's operating costs are 35% lower costs than a comparable CO_2 system and the unit can be expanded and flexibly adapted to merchandising needs. Furthermore, it offers easy maintenance and implementation.

The Solstice L40X (R-455A) refrigerant, meanwhile, maximizes the efficiency of the low- and medium-temperature cooling and the waste heat processing. With its low GWP of 148, this safe Solstice solution enables KONSUM to meet forthcoming European F-Gas requirements which mandate the use of refrigerants with GWP of less than 150 in new systems as of January 1st, 2022.

BENEFITS OF THE KMW 455A SYSTEM WITH HEAT RECOVERY

Financial Benefits

- Saves 30% on electricity and heating costs compared to central refrigeration systems.
- Offers 40% lower energy consumption than plug-in systems without heat recovery.
- Delivers 35% lower investment costs than comparable CO_2 systems.
- Saves on construction or refurbishment time.

Reliability and Flexibility Benefits

- Takes up less space than conventional systems thanks to compact footprint.
- Yields a reliable refrigeration supply.
- Can be flexibly used in everything from all-new store designs to shop re-arrangements or extensions.
- Simplifies system maintenance.

For More Information Visit
https://www.solstice.com/us/en

Solstice Advanced Materials Inc.
115 Tabor Rd. | Morris Plains, NJ 07950

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Doc ID | Solstice® and KMW Equip EDEKA | Case Study | 03.2026