

# SHORT TAKES

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## ITALY'S LARGEST HYPERMARKET OPTS FOR CO<sub>2</sub> REFRIGERATION

- By Andrew Williams

In April 2016, the largest supermarket in Italy opened its doors in Milan. Italian supermarket giant Iper's brand new 10,000 m<sup>2</sup> hypermarket is pioneering a CO<sub>2</sub> transcritical refrigeration system using ejector technology to enhance efficiency in temperatures of up to 38°C, further demonstrating that CO<sub>2</sub> refrigeration is advancing across southern Europe as an efficient and viable solution.

The Iper hypermarket is part of the new Arese shopping centre, which is the largest shopping centre in Italy and one of the largest in Europe. Sustainability is a key pillar of the building's design, which qualifies for U.S. Green Building Council (USGBC) LEED Gold certification, meaning that the hypermarket has been designed and constructed to use less water and energy and to reduce greenhouse gas emissions.

"Using CO<sub>2</sub> to power the refrigeration system is a perfect match to the intentions of LEED. CO<sub>2</sub> is a natural refrigerant and an excellent choice when it comes to reducing greenhouse gas emissions. At the same time, CO<sub>2</sub> provides high performance and exceptional properties for heat reclaim," says Gabriele De Bona, a Key Account Manager at Danfoss Italy.

The Iper hypermarket is one of the first stores to implement new ejector technology from Italian firm Arneg into a transcritical refrigeration system. Convinced by the results of

numerous tests in recent years, Arneg chose the new ejector technology to enhance the hypermarket's energy efficiency.

"Electricity for refrigeration makes up 50% of the total energy consumption of the hypermarket, and our customer Iper has an ambition to cut down this consumption year by year as part of their sustainability programme. Another ambition of the visionary retailer is to switch to natural refrigerants to cut the carbon footprint," says Arneg's Technical Support Manager Enrico Zambotto.

"In order to fulfill these goals, we proposed a transcritical CO<sub>2</sub> solution. It is a large installation with several hundred cabinets and cold rooms operating under ambient temperatures up to 38°C," Zambotto adds.

Since it was only commissioned in April 2016, it is still too early to provide figures for actual energy savings at the Milan hypermarket. However, the experience of Danfoss (which took part in system design, testing of packs and commissioning) from similar installations with heat recovery, intelligent control and ejector technology points to energy savings of up to 50% compared to more conventional installations.

Arneg's turnkey refrigeration solution features components from Danfoss, LU-VE and Dorin. **AW**

