Sustainable cooling solutions:
High efficient NatRef solution for integral refrigeration & heating applications in food retail stores

CATEGORY: Commercial Refrigeration

THE CONTEXT:

On average, electricity accounts for more than 70% of the total energy consumption of a typical European food retailer. More than half of this energy is used to power the refrigeration equipment in the store, the remainder is for lighting, HVAC, baking, and other ancillary services. This is not only a huge cost issue, it is also a concern for the climate and, ultimately, future generations. Viessmann ***ESyCool green*** is a total energy solution for food retail stores based on the natural refrigerant R290, combining decades of expertise within Viessmann on heating, refrigeration, and energy management.

SUSTAINABLE COOLING SOLUTION:

- Integrated, expandable energy system ***ESyCool green*** based on highly efficient EC Pro heat pumps using a low quantity of R290 refrigerant.
- Industrially manufactured outdoor heat pump units, tested, and certified to ensure highest quality and operational reliability.
- Separate gas boilers for space heating are no longer needed: The EC Pro units extract heat from medium temperature refrigerated cabinets and cold rooms, while CO2 direct expansion units extract heat from freezer cabinets and freezer rooms, transferring it to the EC Pro units.
- At warm outside temperatures, the heat is transferred to the dry cooler of the EC Pro units outside the building. When heating is required inside the building, excess heat from both medium and low-temperature cycles can be used for space heating. If this is not enough to heat the indoor space, additional heat can be provided via heat pumps from the ambient air.

EC Pro units are available in two options:
- EC Pro 24/34 kW (ref./heating); max. 4 units (cascade up to 96 kW refrigeration)
- EC Pro 2x 12/17 kW; stand-alone unit from 10 – 24 kW refrigeration for small/medium stores

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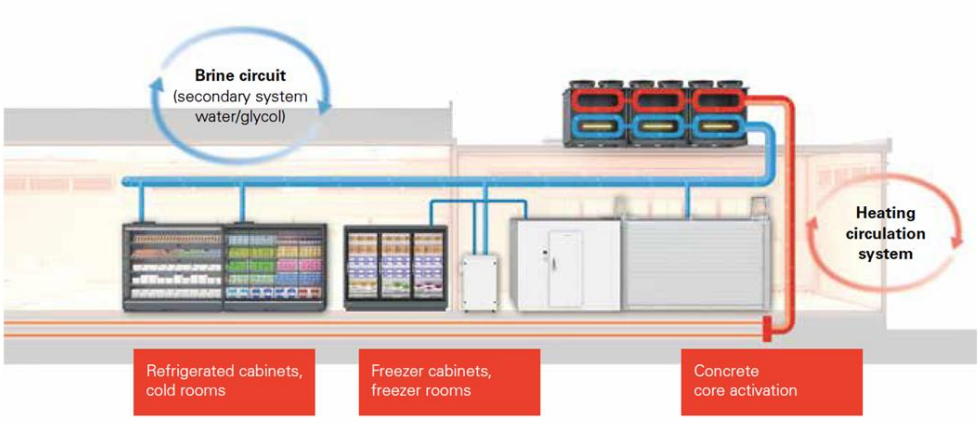

ESyCool green secondary system configuration for refrigeration & heating

BENEFITS:

- Industrially manufactured, tested, and certified EC Pro outdoor heat pump units using R290 as natural refrigerant
- 90-95% less refrigerant charge due to compact hermetic heat pump design and secondary brine loops
- Up to 25% lower energy consumption compared to CO2 DX Integral (dependent on system specification and climate zone)
- Tailored to meet the refrigeration and heating demands of building requirements for a wide range of store formats (EC Pro stand-alone for small/medium stores from 10 – 24 kW refrigeration capacity; EC Pro for medium/large stores up to 96 kW refrigeration capacity)
- Maximum temperature stability of fresh produce due to brine cooling of medium temperature cabinets and cold rooms (especially designed by Viessmann)
- Heat recovery from refrigeration cycles and (if necessary) additional heat transfer extracted from ambient air outside via the heat pump process
- Simplified service and maintenance requirements

Further benefits when using additional components from Viessmann:

- Innovative ice energy storage to use the phase-change energy from water to ice as a very efficient additional heat source
- Photovoltaics to generate renewable solar power supply on-site
- Battery storage for time-shifted use of solar energy in a self-sufficient building

TOPIC:
Energy Efficiency
Synergies with Heating
Heat Pumps
Refrigerants

GENERAL INFORMATION

NAME OF THE COMPANY: Viessmann Refrigeration Solutions GmbH

CONTACT PERSON: Edwin Bloch

HYPERLINK TO LEARN MORE ABOUT THE SUSTAINABLE COOLING SOLUTION:
https://cooling.viessmann.com/our-products/esycool-green
https://cooling.viessmann.com/

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