



CAREL



retail sistema

CAREL Marketing News

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CARREFOUR and CAREL develop the first CO₂ installation in Turkey

The increasing focus on reducing environmental emissions has led CARREFOUR to commission the construction of the first subcritical CO₂ refrigeration system in Turkey.

The new supermarket, open to the public at the start of August and located in Istanbul, uses a cascade system that supplies the medium temperature (MT) refrigeration units and the CO₂ condenser with R404a, and supplies the low temperature (LT) units with R744. The installation and commissioning was being carried out by Cozum Sogutma.

CAREL's strong local presence and its constant attention to supporting new projects and technology that promote low energy consumption and reductions in environmental emissions, meant CAREL TR was perfectly placed to exploit this opportunity.

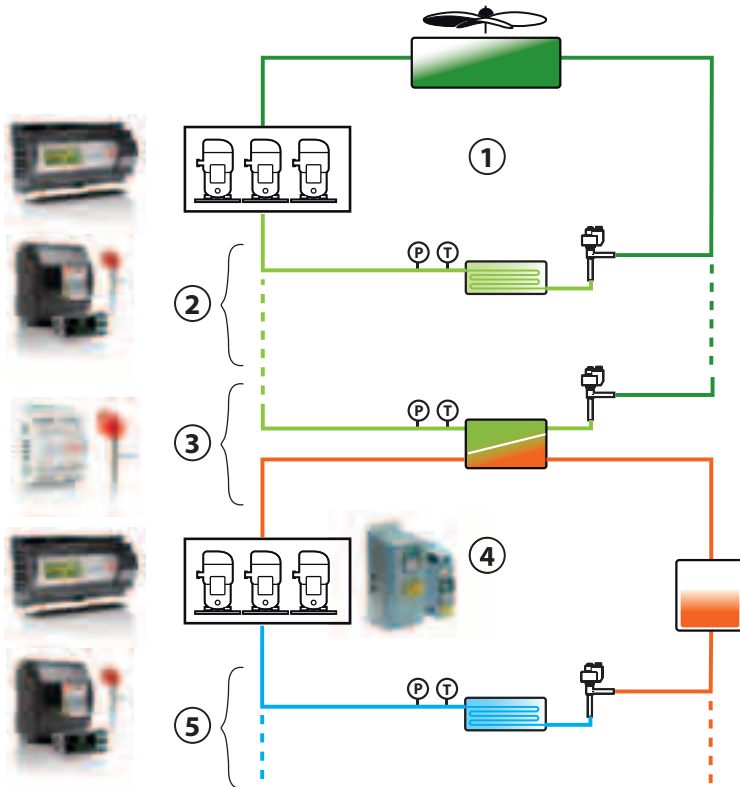
Indeed, the CAREL Retail sistema solution fully manages the food cooling cycle, from the control of compressor racks to complete operation of showcases and cold rooms.

CAREL Turkey, based in Izmir, is a dynamic company operating in refrigeration and air-conditioning sectors, backed by expert staff. The company operates principally in the HVACR market, providing customers technical support in addition to various types of solutions, both simple and advanced, through the development of new algorithms directly by the subsidiary.

The cascade system is one of the most consolidated solutions in the commercial refrigeration market, using carbon dioxide as the cooling carrier fluid for the low temperature units. The use of this natural fluid reduces the presence of HFCs/HCFCs in the entire installation, making the system much "greener".

Carbon dioxide is one of the leading candidates to replace current refrigerants, given its excellent heat exchange properties, its compatibility with the most commonly used materials and oils in the installations, and the fact that it occurs naturally (with a low environmental impact).

Cascade system



Key:

1	R404a rack
2	MT units
3	LT condenser/condensers
4	CO2 rack
5	LT units

The installation features a high temperature (HT) rack and a cascade system bringing together the medium temperature (MT) and low temperature (LT) units (see the table).

As the cascade solution is so dynamic, it was decided to further stabilise the installation using a capacity controlled compressor for the MT units and an inverter-driven compressor for the LT.

Rack	No. of comps.	Capacity steps	Inverter	Show cases	Cold rooms
HT	3	-	-	-	10
MT	5	1 comp with 3 steps	-	56	14
LT	3	-	1	14	1



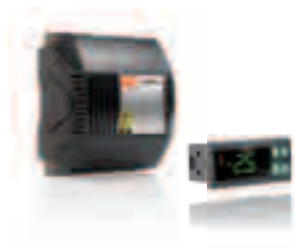
- **PVPRO:** supervisor system



- **pRack:** electronic controller for the compressor racks;



- **MPXPRO** to:
 - manage condensation of the CO₂ in the LT system;
 - manage all refrigeration units (showcases and cold rooms);

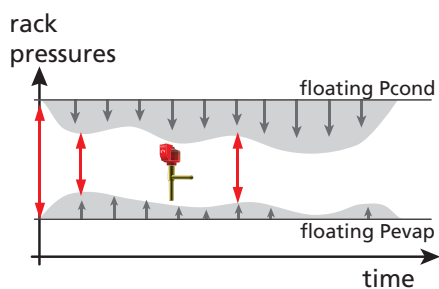


- **E²V** electronic valves:
 - expansion valve for superheat control on the units



- **Energy Saving functions:**
 - floating suction pressure for all compressor racks;
 - floating condensing pressure for the HT and MT systems;
 - showcase anti-sweat modulation relay;
 - heat recovery on the compressor rack;
 - smart/skip defrost;

- scheduled management of supermarket lights and loads;
- energy module: display energy consumption and reports/graphs;
- KPI: display installation performance.



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