

Since 1928, Lu-Ve Spa, based in Uboldo near Milan, in Italy, has been among the main players in the development of heat exchanger components for air conditioning, refrigeration and heat recovery systems. Lu-Ve recently developed and manufactured the Gas Cooler unit for the first refrigeration installation in the world to be completely fitted with a CO<sub>2</sub> transcritical cycle.

The Lu-Ve model SHVDT 696 CO<sub>2</sub>GC was especially manufactured for Linde, one of the most important international manufacturers of refrigeration systems. The SHVDT 696 CO<sub>2</sub>GC is working successfully at the Co-Op Tägipark supermarket located in Wettingen (Zurich, Switzerland).

The project is the first of its kind and has been studied and developed by Lu-Ve S.p.A in cooperation with the Linde laboratories

## Gas cooler for CO<sub>2</sub> transcritical applications

Köln, Germany. It is the largest CO<sub>2</sub> transcritical installation in the world. The installation has high and low temperature refrigeration circuits (fresh and freezing cases plus cold rooms); and has a single circuit for high pressure side with the Lu-Ve's gas cooler cooling the compressed carbon dioxide at transcritical levels.

Lu-Ve's achievement is the result of a complex study developed in collaboration with the Politecnico of Milan, using unusual solutions and technical choices for refrigeration applications. The gas cooler de-

sign involves extreme working conditions which have never been applied before.

SHVDT 696 - CO<sub>2</sub> Gas cooler features: rating 500 kW; 12 fans - 800mm diameter; 7m length x 2.40m width x 2.25m height; refrigeration with CO<sub>2</sub> transcritical cycle; maximum working pressure 120 bar; CO<sub>2</sub> maximum temperature 150° C; Spray system (demineralised water) applied to the fins; CO<sub>2</sub> gas cooler exit temperature guaranteed (not higher than 30/35° C, summer conditions) and therefore with a high COP energy efficiency coefficient (cooling performance/electric power).

The project has also been achieved due to Lu-Ve's ability to build upon their existing technical innovations for the construction

of high efficiency heat exchangers. In this particular case, Lu-Ve's technology has allowed the use of copper tubes with reduced diameter to be installed on the SHVDT 696 - CO<sub>2</sub> gas cooler. This characteristic is very important since an installation with a SHVDT 696 Lu-Ve has a minimum environmental impact due to CO<sub>2</sub> being used as refrigerant fluid. The gas cool-

er has strictly selected components qualified to obtain energy savings.

Environmental issues have always been a major consideration of the Co-Op supermarket group in Switzerland and in particular the use of environmentally efficient products within their estate.

Linde and the Swiss Coop chain are said to be very satisfied about the installation and the product supplied by Lu-Ve.

A new CO<sub>2</sub> gas cooler with 10 x 800 mm fans will be manufactured for an installation by Linde at one of the Migros Supermarket stores in the autumn.

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