

LU-VE GROUP: FIRST EUROVENT CERTIFICATION FOR CO2

Uboldo, 21.1.21. – LU-VE first three times

At the end of 2020, LU-VE Group was amongst the very first companies to obtain Eurovent certification (No. 00.10.214) for CO2 unit coolers (thermal capacity, sound level and energy consumption), marketed under the brands LU-VE Exchangers and AIA LU-VE.

In 2016, LU-VE was the first manufacturer for which Eurovent officially certified that their heat exchangers for refrigeration had never registered a single negative test during three different test cycles (between 2011 and 2015).

In 2000, LU-VE was the first company in Europe to obtain Eurovent's then new "Certify All" certification, for all ranges of condensers, dry coolers and unit coolers.

In the twenty years since then, LU-VE products have passed all the laboratory tests required by the certification procedure, which provides for an annual verification of some models of the ranges, chosen by Eurovent as samples, and tested at specialized international institutes.

AT THE FOREFRONT FOR CO2 SINCE 2004

Eurovent certification, the first of the series explicitly dedicated to unit coolers using carbon dioxide as the refrigerant fluid, is the culmination of a journey that has seen LU-VE be "first mover" in this field.

Already in 2004, well ahead of the market and the current "green wave", the Group had produced the SHVDT 696 - CO2 gas cooler, on behalf of Linde, one of the major international manufacturers of refrigeration systems, destined for the Coop Supermarket, Tägipark Wettingen (Zurich, Switzerland).

The project, unique in its field, was studied and developed in collaboration with the Linde laboratory in Cologne. At that time, it was the largest transcritical CO2 plant in Europe and in the world. Still in service, it is designed for medium and low temperature refrigeration systems (refrigerated counters, freezers, and cold rooms), has a single circuit for the high-pressure section, with the LU-VE gas cooler which cools the carbon dioxide compressed to transcritical levels.

The fulfilment of the project was the result of a complex study, developed in collaboration with the Politecnico di Milano, which involved the adoption of unusual technical solutions and choices in the field of refrigeration.

The plant operates on the limits of working conditions, never reached before at the time:

- refrigeration entirely with CO2 transcritical cycle;
- maximum operating pressure 120 bar;

- maximum CO2 temperature 150° C;
- spray system (demineralized water) applied to fins;
- guarantee of the CO2 outlet temperature from the gas cooler (not higher than 30/35 ° C, in summer conditions), and therefore high COP coefficient of energy efficiency (cooling capacity / electrical power).

Never before had a system similar in size and complexity been conceived and built.

R&D AND RESPECT FOR THE ENVIRONMENT

Ahead of the market since 1986, LU-VE has adopted policies of avant-garde research and development and respect for the fundamental principles of environmental protection: reduced energy consumption, reduced use of refrigerant fluid, low noise levels, high reliability over time, reduced dimensions. The new Eurovent certification, issued to a first small group of producers of CO2 unit coolers, derives from this long experience.

LU-VE Group was amongst the first to focus on the replacement of F-Gases (fluorinated greenhouse gases), ahead of the market, which today increasingly focuses on the use of natural refrigerants (carbon dioxide, hydrocarbons, and ammonia) with low or no impact on the ozone layer or greenhouse effect.

SHIFTING THE CO2 EQUATOR

In the case of CO2, the new challenge is to shift the "CO2 equator" and make this technology efficient even in countries where it was not possible before. LU-VE Group is at the forefront also in this case. Together with international institutes and universities, it is collaborating with the United Nations Industrial Development Organization (UNIDO) to increase the use of natural fluids, replacing those with a greenhouse effect. To this end, pilot plants have been built in India and the Middle East, in areas where it was thought that the climatic conditions made it impossible or extremely difficult to use CO2.

Since 2004, through challenging research projects on new refrigerants, LU-VE Group boasts a track record of first highly successful transcritical CO2 installations in Europe, Latin America, the Middle East, and Asia. In 2020, the first plant in the Ukraine was installed in the zero environmental impact Silpo supermarket in Kiev, equipped with heat pumps, solar energy, and a highly efficient carbon dioxide refrigeration system.

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