|  |  |
| --- | --- |
| Date | 5/12/18 |
| Job number | DEUEN18-037 |
| Job description | Biocoop |
| Category | Case Studies |
| Audience | Installers, End Users |
| Sectors | Food Manufacturing, Food Retail |
| Tags | energy efficiency, Tewis, refrigeration, off-grid |
| Tweet | **A first for #Daikin in France – installation of #transcritical #CO2 refrigeration system.** |
| Version | Final |
| Owner | Márcia Tavares |

First Daikin CO2 refrigeration system installed in France

December 5th, 2018

Daikin completes the installation and commissioning of the first transcritical CO2 refrigeration solution on the French market at a meat processing laboratory in the Dordogne.

Biocoop is a leader in organic food distribution, with a network of over 500 organic stores. In 2017, a Biocoop franchisee with a number of shops and restaurants in the Aquitaine region, decided to open a new butchery and charcuterie processing laboratory at Boulazac, to service both its own outlets and the Biocoop network in the southwest of France.

Natural Conversion to CO2

As a long-standing customer of installer Froid Cuisine 24, the franchisee sought the company’s help in researching and installing a refrigeration solution for the 1,200 square metre laboratory. A Daikin partner since the installer company’s inception 20 years ago, Froid Cuisine 24 initially suggested Daikin’s ZEAS refrigeration solution. With several Daikin installations already in place, the franchisee was very satisfied with the company. Additionally, the ZEAS solution was one with which   
Froid Cuisine 24 had a lot of experience.

However, with increasingly strict regulations on the use of higher GWP refrigerants and wishing to follow the Biocoop philosophy on sustainable development, it was decided to opt for an alternative that used CO2, which as a natural refrigerant has no impact on global warming, despite the additional cost of the equipment and its installation compared to a traditional system.

*“At Biocoop, we regularly make significant investments in finding solutions that bring about a maximum of energy savings...The CO2 system is a real plus when it comes to promoting our approach,”* explains Fabien Marzano, Biocoop Site Manager.

The installer assessed a range of alternative solutions. As long-standing partners, Froid Cuisine 24 approached Daikin about the possibility of a ZEAS CO2 system. With the subsequent acquisition of Zanotti and the Integration of the Tewis brand, Daikin was able to offer a new solution based on the franchisee’s preferred refrigerant.

Minimal changes compared to conventional installations

The managers of Froid Cuisine 24, new to Tewis transcritical technology, visited a similar installation and the Tewis factory itself, which gave them the confidence in opting for a Tewis system. A second visit in advance of the installation process focused on critical points including piping for the transcritical CO2 technology. This offered additional reassurance, given the relatively minor changes needed in comparison to a traditional refrigeration solution.

*“We didn’t see any major differences compared to traditional refrigeration systems. The only modifications related to the size of the smaller-diameter pipes, the need to insulate the liquid line to avoid condensation problems, the modification of some tools, and the installation of CO2 leak detectors in all rooms. Above all, it was the critical temperatures that we had to control. Otherwise, the installation techniques and the controls are quite similar,”* Sébastien Toulouse explains.

Froid Cuisine 24 has additionally demonstrated its commitment to service support, by obtaining the necessary specialist qualifications and setting up an on-call system for weekends.

Safe, effective and energy efficient

Sited in a large industrial area away from residential developments, there were no planning restrictions in respect of noise and visibility or limitations on floor space. Employee safety and energy efficiency however were key, along with system continuity.

*“Froid Cuisine 24 assured us they would respect the 3 essential criteria we had stipulated: to guarantee the safety of our employees, to connect the Tewis/Daikin system to the water desuperheater to recover energy, and to ensure the proper operation of the system with short intervention times, the workshop being located 600 m from the offices of Froid Cuisine 24,”* explains the laboratory manager.

Within the laboratory, there are varying requirements for temperature control, spread across eleven different areas. The Tewis/Daikin 78.3 kW transcritical system provides positive cooling (0 to +2°C in some rooms and +8 to +10°C in others) to meet a range of needs throughout. Thirteen 1.8 kW to 10.5 kW evaporators (one/two per room) are directly connected to the transcritical system, while a second, insulated R-452 system was chosen to provide refrigeration in a separate cool room. An air treatment system using a ducted network provides air conditioning to corridors in the laboratory.

In the casings preparation room, where corrosive products in use posed a potential risk to the CO2, an alternative system operating on R-134A refrigerant was installed.

Additionally, a water/CO2 exchanger was installed to provide the chilled water needed in the two dryer and oven areas, as well as a 25 kW CO2/glycoled water exchanger. A 50 kW, 20/45°C water desuperheater has also been integrated with the Tewis system to recover heat. providing domestic hot water and compensating for kitchen ventilation as required.

To ensure maximum safety, CO2 leak detectors have been fitted to all laboratory equipment. These are connected to an audible and visible alarm system which sends automatic alerts by email and SMS. A communication gateway runs from the transcritical system to each evaporator, connected via a central management system from PC to laboratory, to Froid Cuisine and Tewis.

*“We are very proud to be able to support Daikin with this first installation of a transcritical CO2 refrigeration system. We have always had great confidence in their technologies. Their engineers are always able to find technological solutions capable of accommodating any environment,”* says Sébastien Toulouse.

Concludes a Tewis/Daikin technician *“This type of solution based on a natural fluid with a GWP of 1 calls for a very advanced level of technical and regulatory knowledge because of the different behaviour of CO2 compared to other refrigerants. These new skills contribute to the professionalism of the refrigeration sector.”*

Ends

EDITOR NOTES

About Daikin Europe N.V.

Daikin Europe N.V. is a major European producer of air conditioners, heat pumps and refrigeration equipment, with approximately 5,500 employees throughout Europe and 10 major manufacturing facilities based in Belgium, the Czech Republic, Germany, Italy, Turkey and the UK.

Globally, Daikin is renowned for its pioneering approach to product development and the unrivalled quality and versatility of its integrated solutions. With more than 90 years’ experience in the design and manufacture of heating and cooling technologies, Daikin is a market leader in heat pump technology. Daikin VRV and Daikin Altherma are the most sold heat pump systems in Europe, with over 500,000 systems delivered to date.

About Froid Cuisine 24

Froid Cuisine 24 provides know-how on the installation of mainly commercial HVAC solutions for small to medium businesses and for the professional kitchens of restaurants and public/community establishments (canteens, retirement homes, etc.). The installation of isothermal partitions and doors is also among the activities of Froid Cuisine 24. The company has a second entity specialised in residential equipment. The first installer to introduce Daikin Altherma High Temperature technology, it was also among the first installers of Daikin’s VRV-i solution in the region, particularly for the Biocoop brand. Froid Cuisine 24 is a member of the Expert Confort Habitat network of Daikin France.

……………………………………………………………………………………………………………………………………………………….

FURTHER INFORMATION

Contacts

For Media enquiries contact:

Anju Sarpal: +44 7980 785572/Charmaine Kimpton +44 7414 749973 or email

[Daikin-News@sheremarketing.co.uk](mailto:Daikin-News@sheremarketing.co.uk)