

THE PROJECT

Construction of a fermentation cellar
Domaine THIBERT

A good glass of wine contributes to one's well-being and quality of life. Since the dawn of time, wine is an element that is always part of the most important moments in the life of humans: we drink to the birth of a child, we raise a toast to celebrate marriages, and we lift our glasses to welcome the New Year and to mark life's victories, successes, and achievements.

Wine is all of this: the pleasure of choosing, a lifestyle, experiencing a culture. It is a tradition that, nowadays, utilises modern techniques and technologies that contribute to emphasise its characteristics and thus define it.

Aermec is a leading air conditioning company whose objective has always been to provide well-being; it has decided to invest in this area and to make its skills available to the agriculture and food sector, especially to the wine industry.

Aermec's know-how has progressed considerably during the past few years and today it allows the company to offer path-breaking solutions.

This encourages us to make sure that my father's idea becomes an established strategy. It will help us take initiatives that contribute to bring to fruition our efforts to compete also in this market, almost completely unexplored for us at the moment.

Through this publication, we intend to share our achievement and what contributes to make even better this nectar that we all appreciate.

Alessandro Riello
President

The architect studio **ROBIN ARCHITECTES ASSOCIES**, located and well established in Mâcon (71), has been in existence since 1978; construction in the wine growing sector is one of its specialities. Its team consists of five persons, three of them architects, who will support you to complete diverse and varied projects: dwellings, public buildings (used for administration culture, education, early education, health), technical buildings (workshops, laboratories), etc.

www.robinarchitectesassocies.fr



The company **WBI**, founded in 1993 by Mr William **BALLOFFET** and located in Pruzilly since 1996, is a HVACS consulting engineering firm located a few kilometres from Mâcon. Its team consists of five persons (four of whom are highly qualified technicians) who support you in your personalised and optimised studies on the technical aspects (heating, ventilation, air conditioning, sanitary plumbing, and electrical systems) of the residential, tertiary, and industrial sectors.

www.wbi-macon.com

Client's needs.

The project of the **THIBERT** estate was to increase the surface of the buildings intended for vinification and ageing of wine (storage space for the vats, barrels, and bottles, as well as tasting and visitors rooms) by an area of 700m².

The main objectives were to continue expanding production capacity while improving the working and wine storage conditions as well as those of the reception area.

The estate strongly wished that the new building should have a contemporary look, at the same time blending with the truly characteristic and authentic architecture and scenery of the village.

The representatives of the **THIBERT** estate wished to replace their old heating and cooling system (horizontal geothermal system with intake located at the site of the new cellar) with a reversible heat pump with air condensation which would make it possible:

- to heat and cool the storage building (for bottles) and the new building (fermentation cellar and barrel storage);
- to heat and cool the existing and future vats; (total future capacity: 2,500hl).
- to obtain the tartaric stabilisation by cooling (possibly).

Client's constraints.

The new building is intended for vinification and for wine ageing and storage. To achieve these ends, the construction must lead to optimum conditions making it possible to control each step perfectly. Here, prefabricated and pre-insulated concrete walls provide all desired characteristics (high thermal inertia, excellent insulation, solidity, and aesthetic appeal).

The very large volume provided by this type of construction requires only four posts, making the spaces highly adaptable. The difficulty of this approach was that what was sought was a high performance contemporary building that would blend perfectly with its surroundings.

Therefore, the installation had to be capable of heating and cooling two separate rooms (taking into account the existing



installation: air treatment units and ducts) and to heat and cool the vats of the estate.

Two additional constraints were taken into account for heating and cooling:

- total capacity of the future vats 2,500hl.
- tartaric stabilisation by cooling (chilled water temperature ≈ 0°C).

The installation also had to be compact (limited space available: heat pump with integrated buffer tank) and as quiet as possible (installation in a village: low noise heat pump).

Description of the installation.

The installation includes a reversible heat pump with air condensation and three secondary loops:

- 1 loop connected to the existing heating and cooling network for the old fermentation cellar (air treatment units);
- 1 loop to heat and cool the new fermentation cellar (air treatment units);
- 1 loop to heat and cool the vats.

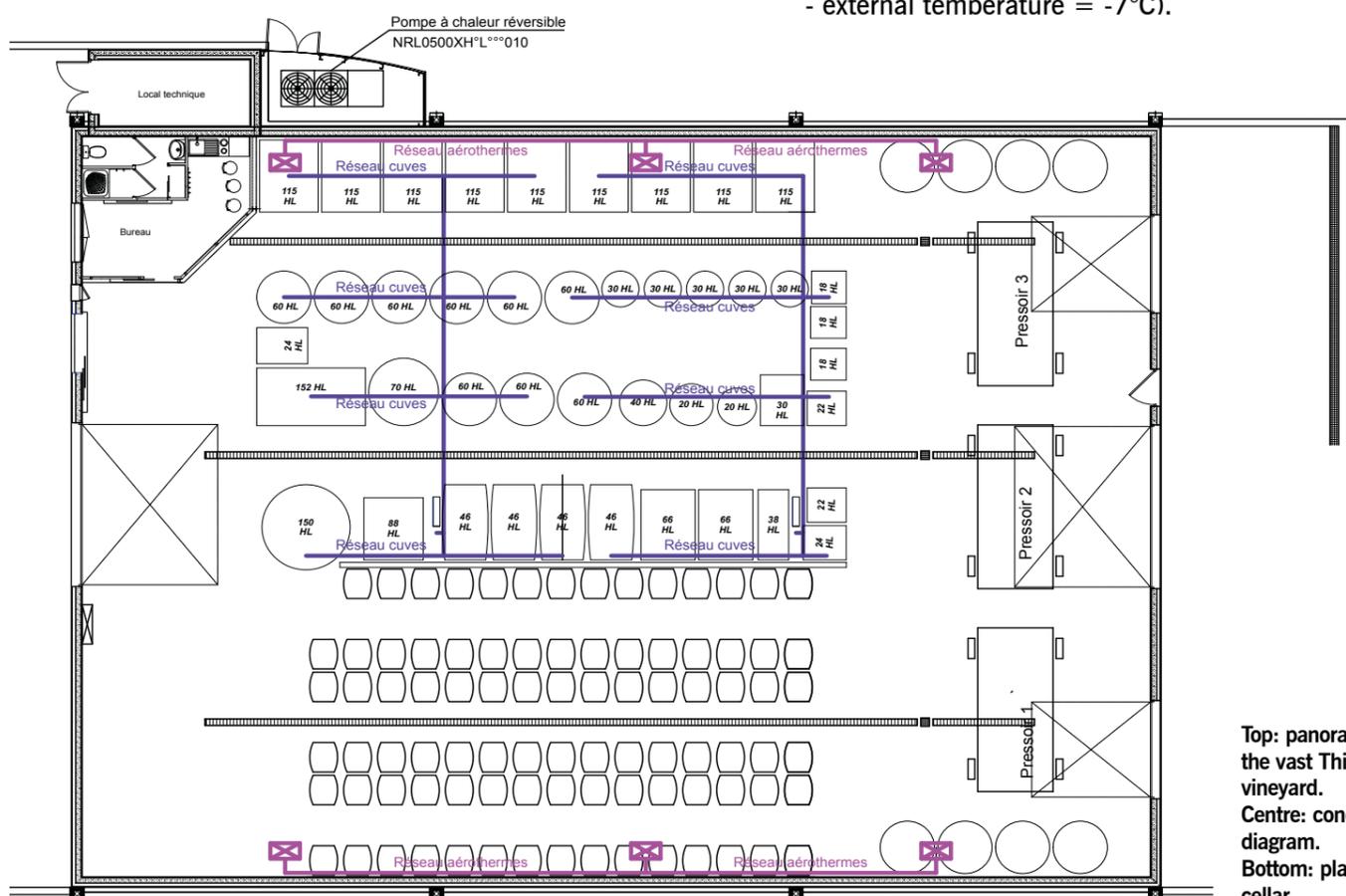
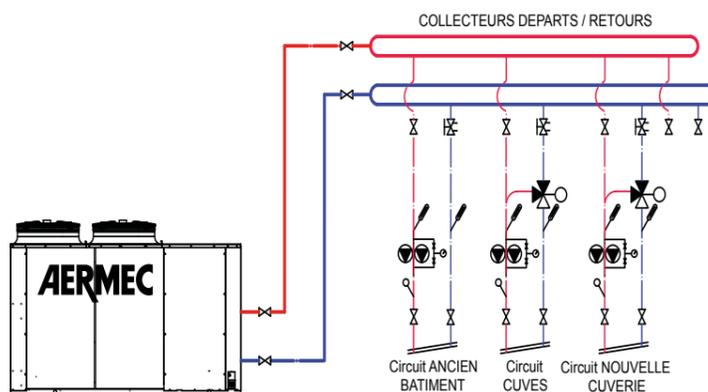
Characteristics of the heat pump.

The heat pump consists mainly of three scroll-type compressors and two independent refrigeration circuits (R410A).

A buffer tank is sprinkled by a double circulator in order to ensure the correct operation of the heat pump under all loads conditions (hydraulic separation).

The heat pump was selected in the low noise level version in order to comply with the site's noise restrictions.

- Cooling power: 62kW (chilled water temperature = 5/0°C - external temperature = +32°C).
- Heating power: 60kW (hot water temperature = 40/45°C - external temperature = -7°C).



Top: panoramic view of the vast Thibert estate vineyard.
Centre: conceptual diagram.
Bottom: plan view of new cellar.

DOMAINE THIBERT PÈRE ET FILS

The THIBERT estate, founded in 1967 by Andrée and René Thibert, is now managed by their children Christophe (since 1991) and Sandrine (since 1999). Andrée and René Thibert descended from over seven generations of families of wine growers; they founded their own estate in 1967 (2,50 hectares), in a dwelling going back to the 19th century.

Their two children, Sandrine and Christophe, currently sole co-managers, joined the estate in 1999 and 1991 respectively.

The vineyard grew over the years and the sales of bottled wine developed accordingly.

- 2005: the entire production of the ESTATE was centralised in a new building in which the work started with the reception of the grape harvest and ended with the shipment of the bottles.
- 2009: a tasting room was opened, capable of accommodating groups of up to 60 people (it can host conferences, seminars, etc.).
- 2014: construction of a new fermentation cellar.

The Thibert Père & fils estate now covers 29 hectares, which produce all the South Mâcon denomination: Pouilly-Fuissé, Pouilly-Vinzelles, Pouilly-Loché, Saint-Véran, Mâcon-Fuissé, Mâcon-Prissé, Mâcon-Verzé, Crémant de Bourgogne... with a yearly production of 155,000 bottles.



Top right: the Thibert family property, the headquarters, offices, and tasting rooms.
Left centre: the modern vinification equipment in the new cellar.
Right centre: the storage area.
Bottom left: the tasting room.

Aermec presents europe's largest test chamber.

Aermec recently inaugurated what is, in absolute, Europe's largest test facility for air conditioning applications.

Representing a €5M investment, the new chamber allows units of up to 2,000kW cooling and heating capacities to be tested, and measures 28m in length by 6m in height for a total volume of 2,200m³.

The new test lab has already been accredited with Eurovent certification (up to 1,500kW, Eurovent's limit), acknowledging the precision levels achievable.

In fact Aermec can guarantee a precision of +/-0.2°C on the water side and +/-0,3°C on the air side, with precision instruments, including 240 temperature sensors, 100 pressure transducers allowing testing in conformance to EN 14511 norms. It is also AHRi certified for the North American market, having met the rigorous standards this certification requires.

This highly versatile test lab allows testing with ambient temperatures from -20°C to +55°C and relative humidities from 20%RH to 95%RH. Numerous 50Hz and 60Hz voltages are catered for, in line with Aermec's presence on all continents worldwide. Even noise testing, again with Eurovent certification and according to UNI EN ISO 9614, can be carried out.

Air and water-cooled Chillers and Heat Pumps, Air Handling Units, Indirect Evaporative Coolers and Dry Coolers can all be tested, with an added Data Hall simulator chamber allowing realistic testing of Data Centre applications. If desired the single lab can be transformed into two smaller labs for simultaneous independent testing. In line with Aermec's environmental policy, absolute priority was afforded to minimal energy consumptions during operation, in fact the lab's unique heat recuperation plant ensures that most of the utilised energy can be reused within the process.

Aermec's new Eurovent certified test labs confirm its standing at the very forefront of large application solutions, and represent a notable investment towards Aermec's goal of ever more sophisticated and high quality large product offerings ensuring ever lower energy consumptions.

Particular attention has also been afforded to Customer witness testing, an ever increasing requirement for large projects. Then new test labs will feature a dedicated Customer witness room where all parameters can be instantly and graphically monitored and recorded, specific Customer requests can be quickly implemented and unit operation can be visualised from the comfort of your chair. Aermec is fully convinced this new test chamber, which joins the tens of other specific chambers already present within its facilities in Bevilacqua (Italy), will allow the company to further consolidate its growing presence within large system solutions.

