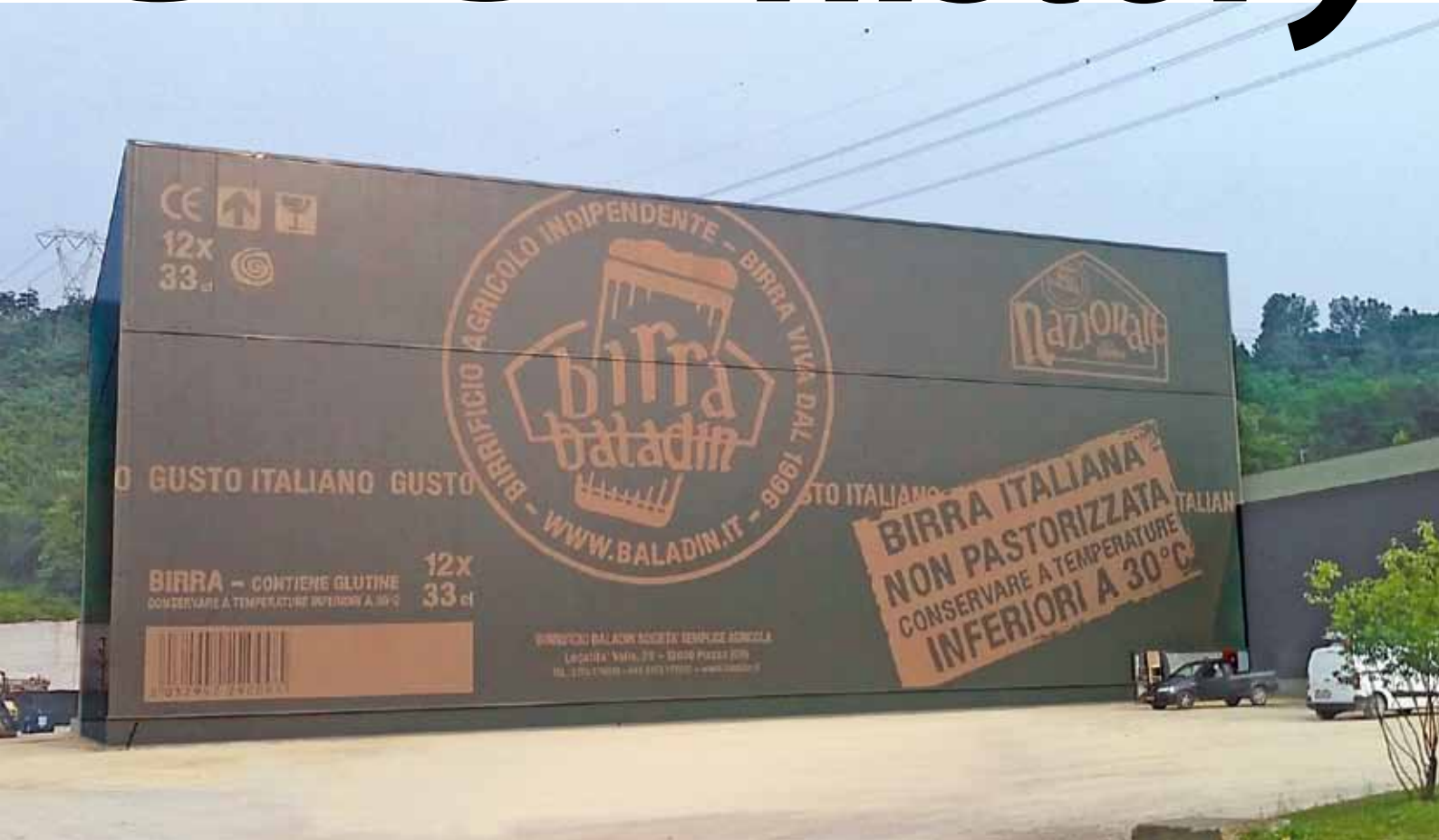


Sector: Beverage

**BIRRIFICIO  
BALADIN**



# CASE *history*



## Ferretto Group automation supporting controlled fermentation

To implement its storage, distribution and controlled fermentation processes, Baladin built an innovative automated storage system, designed not only to handle ordinary storage and retrieval operations for product distribution, but also to manage the secondary fermentation process, also called bottle conditioning, through accurate temperature and humidity control achieved by moving product lots between different cold rooms with specific temperature and humidity values.

The result is an innovative automatic storage system managed by a steering stacker crane that operates on two aisles. The pallets are placed in multiple-depth storage using a special shuttle in three different-temperature cold rooms. The cold rooms are separated by imposing 20 metre high doors.

Based on specific fermentation cycles, specialist software controls the times that the lots of bottles remain in each specific cold room, coordinating the movement of pallets automatically. This ensures a very high level of precision in managing product refermentation and stabilisation, bringing a considerable reduction in the duration of the bottle refermentation process.

**The overall system also ensures significant energy savings**, due to the temperature control technology used and access control to the various different storage areas

## Competitive advantage

Until now, proposals for the construction of automated temperature-controlled cold rooms, both in Italy and Europe, have not envisaged a complete package comprising temperature and humidity control, and consequently physical stabilisation of these parameters inside the cold room.

Consequently, coordination by Baladin between the different companies specialising in specific sectors proved to be fundamental.

The resulting technological solution may also prove beneficial in many other applications.

**Indeed, these applications can be useful in the following sectors:**

- Beer (and wine) refermentation
- Stabilisation of yeast after production
- Cheese sector, for maturing cheese
- Composite materials for avionics

## System features

An automated multi-cold room storage system can be useful whenever a production process requires controlled, variable temperature and humidity in the storage area (fermentation, product stabilisation, maturation, drying, treatment of composite materials at different temperatures, etc.).





## The main features of the system are:

1. Large automated cold room, suitably divided into compartments based on the required temperature and humidity.
2. Fully automatic movement of materials between cold rooms; this for example ensures the process curves are applied even at times when no operators are present to supervise the system (overnight, weekends and public holidays).
3. No personnel needed in areas where working conditions may be difficult (cold, hot, high humidity).
4. Energy saving due to optimised access control (opening and closing of doors) in the controlled areas.
5. Precise control of the parameters using the sensors fitted in the cold room, which send the values of the controlled variables in real time to the heating/cooling and ventilation system.



## Advantages achieved by using this technology

- Compliance with process parameters (temperature and humidity) in terms of precision of the controlled values.
- Compliance of the storage time parameter in relation to the other process parameters.
- Fast return to required conditions following an external event (e.g. opening and closing a door inside the store).
- No sources of contamination inside the cold room (forklifts and operators).
- Efficient temperature and humidity control (energy savings).
- Increased storage density (lower volume of cooled/heated air than the storage volume).
- Ability to interface automatically with other automated devices (anthropomorphic robots, LGV-Laser Guided Vehicles).

Storage system facts and figures:

### INSTALLATION CHARACTERISTICS

Automated multi-cold room warehouse (24°C, 6°C, ambient temperature) provided with 2 automated doors for the transit of the stacker crane

### AUTOMATIC STORAGE SYSTEM CAPACITY

total capacity of 2.660 pallet positions as below:  
546 pallet positions at 6°C  
840 pallet positions at 24°C  
1274 pallet positions at ambient temperature

### AUTOMATIC STORAGE SYSTEM DIMENSIONS

width 21,7 m  
length 38 m  
height 19,8 m of which 15 m above ground

### TYPE AND NUMBER OF STACKERCRANES

n.1 steering stacker crane operating in multiple-depth storage

### RACK CHARACTERISTICS

Self-supporting racking system for storage in multiple-depth (7,6,3 depths) insulated with insulating panels with a thickness of 150 mm

### LEVELS NUMBER

7

### BAYS NUMBER

20

### LOAD UNIT

Wooden pallet 800x1200xH=1800 mm  
800x1200xH=1950 mm with slave pallet

### AISLES NUMBER

2