PROCESS CONTROL SYSTEM BATCHXPERT

The BatchXpert system is a control system for batch-oriented processes and includes management and reporting for small and medium-sized applications. It can manage, control and monitor the batch production of products for the food and beverage industry.

It provides tools to create, manage, and execute recipes, and automatically generates production reports based on the processes being executed. This manual provides a brief overview of the system functions.

For more information, please visit www.MLogics-Automation.com.

In the following document, we would like to present some examples of the system visualization interface of some projects that have already been implemented. The examples listed below are taken from ongoing projects of various breweries and other industries, and are intended to provide a general overview of the visualization of the operating personnel.

Cervecería Kunstmann, Valdivia, Chile

The Kunstmann Brewery is located in the city of "Valdivia" in the central south of Chile. In this brewery, a large part of the production was automated in several stages with the BatchXpert system. The Kunstmann has two brewhouses by Kaspar Schulz and a fermentation/storage cellar with about 60 tanks of different sizes.

With regard to the conversion of the existing brewhouse "KS1", there is a "case study", which can be viewed here: www.docu.mlogics-automation.com/wp-content/uploads/Case-Study-Migration-to-BatchXpert-EN.pdf

In the "Kunstmann" brewery, the following was produced:

- A "Kaspar-Schulz" brewhouse with 110 hl of wort (KS2)
- An existing "Kaspar-Schulz" brewhouse with 100 hl of wort was converted from the "Braumatik" system to the BatchXpert (KS1)
- A new fermentation cellar with 27 Unitanks
- The existing 33 fermentation/storage tanks were integrated into the BatchXpert by retaining the existing controls and electrical components
- A "Lupulator" from Banke was integrated for dry-hopping.

Brewhouse

Illustration 1 Start screen with all sub-areas

Illustration 2 Control room of both brewhouses with two stations in double-monitor operation

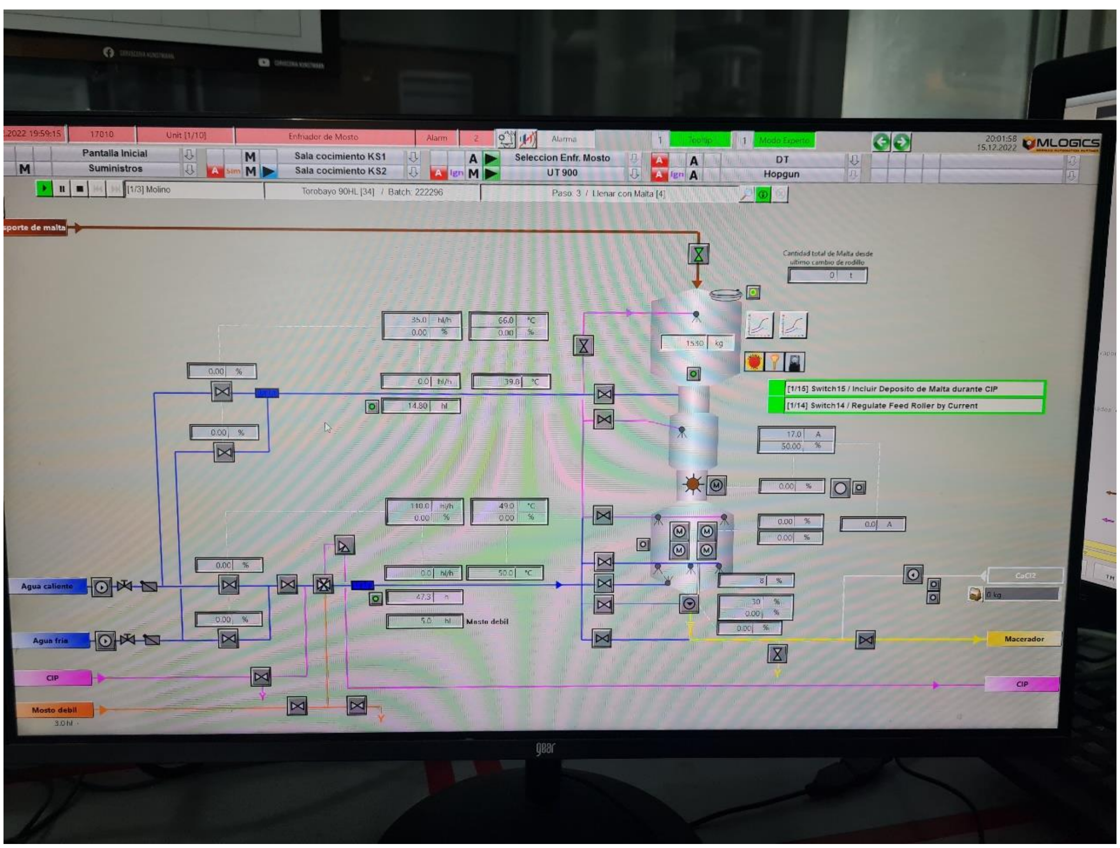

Illustration 3 "Millstar" wet<u>Grist mill</u>

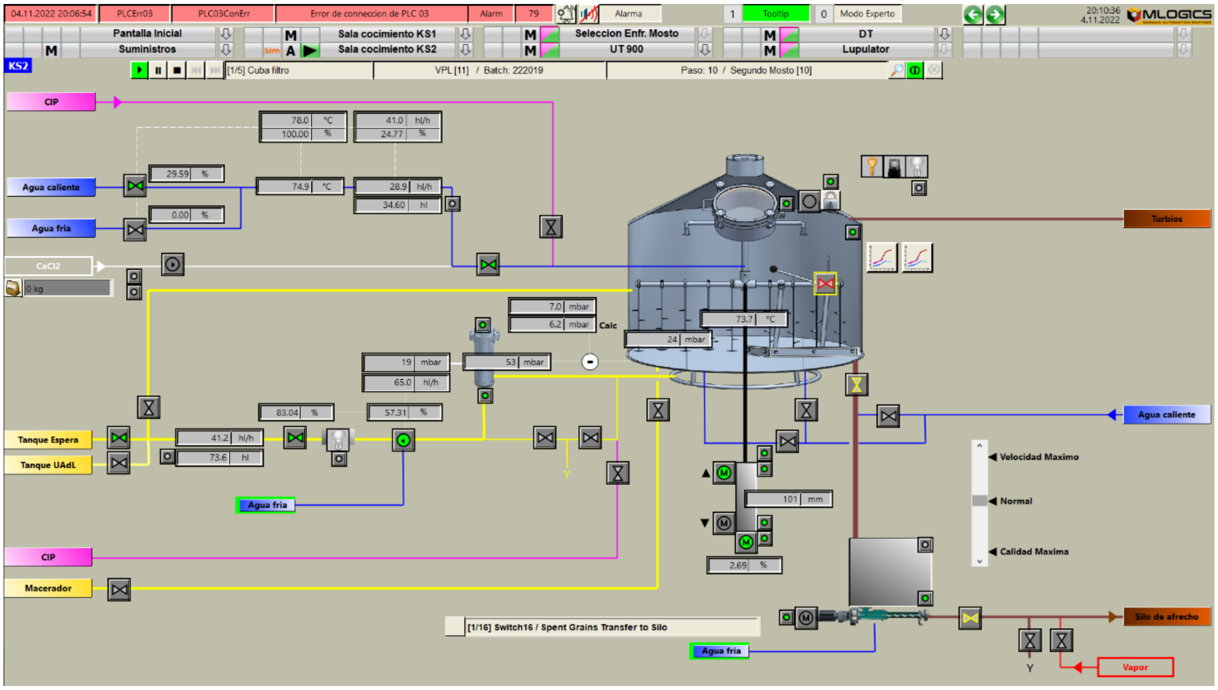

Illustration 4 "Kaspar Schulz" lauter tun in the brewhouse KS2

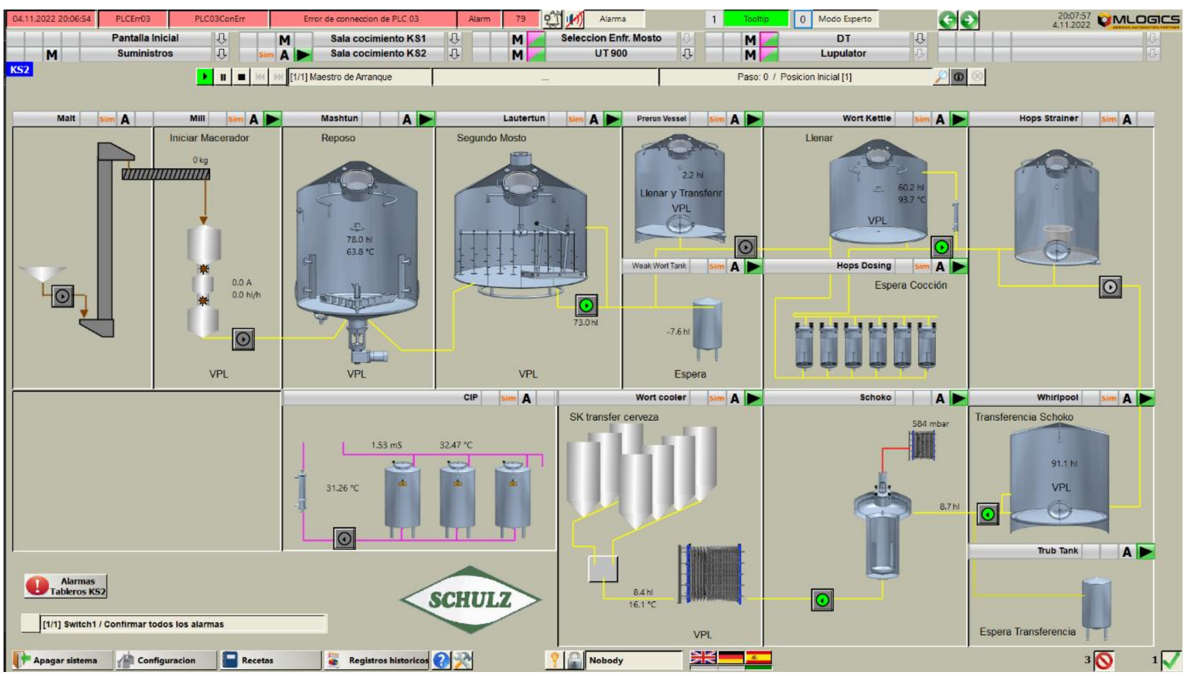

Illustration 5 Overview of the KS2 brewhouse

Illustration 6 "SchoKo" system in the brewhouse KS2

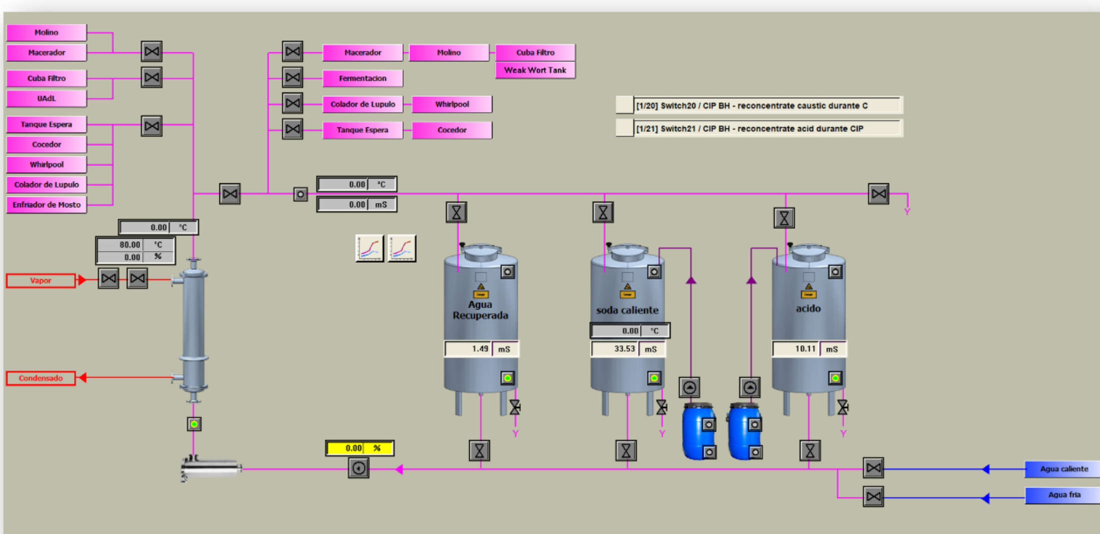

Illustration 7 CIP station in the KS2 brewhouse

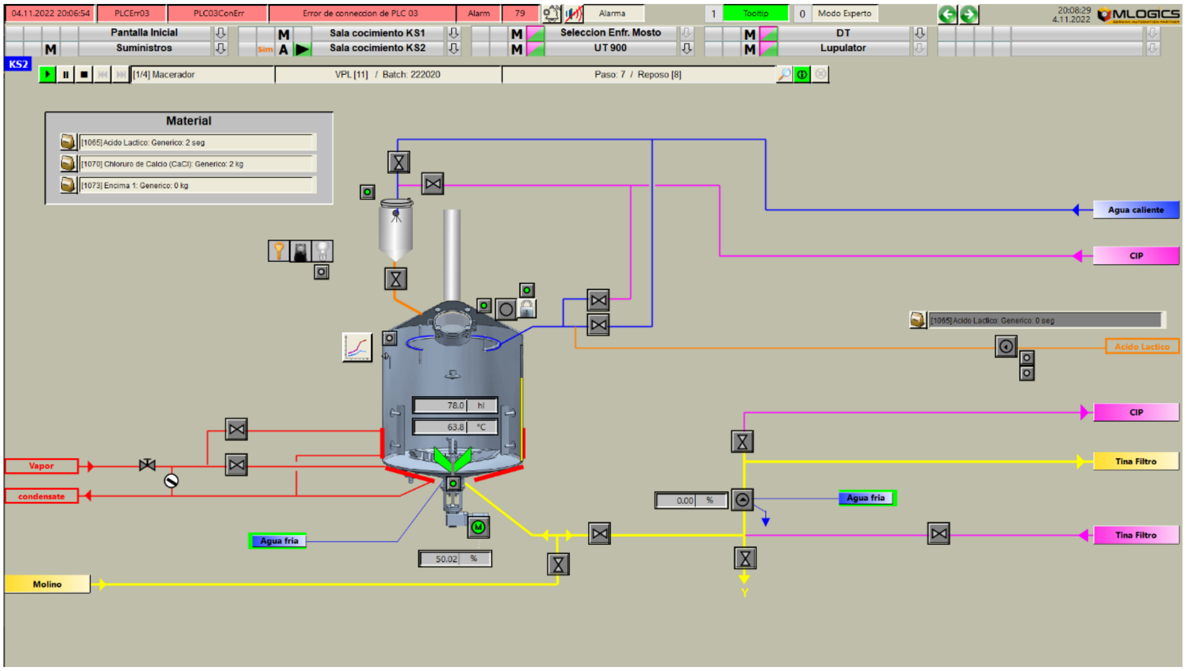

Illustration 8 Mash tun in the brewhouse KS2

Cellar

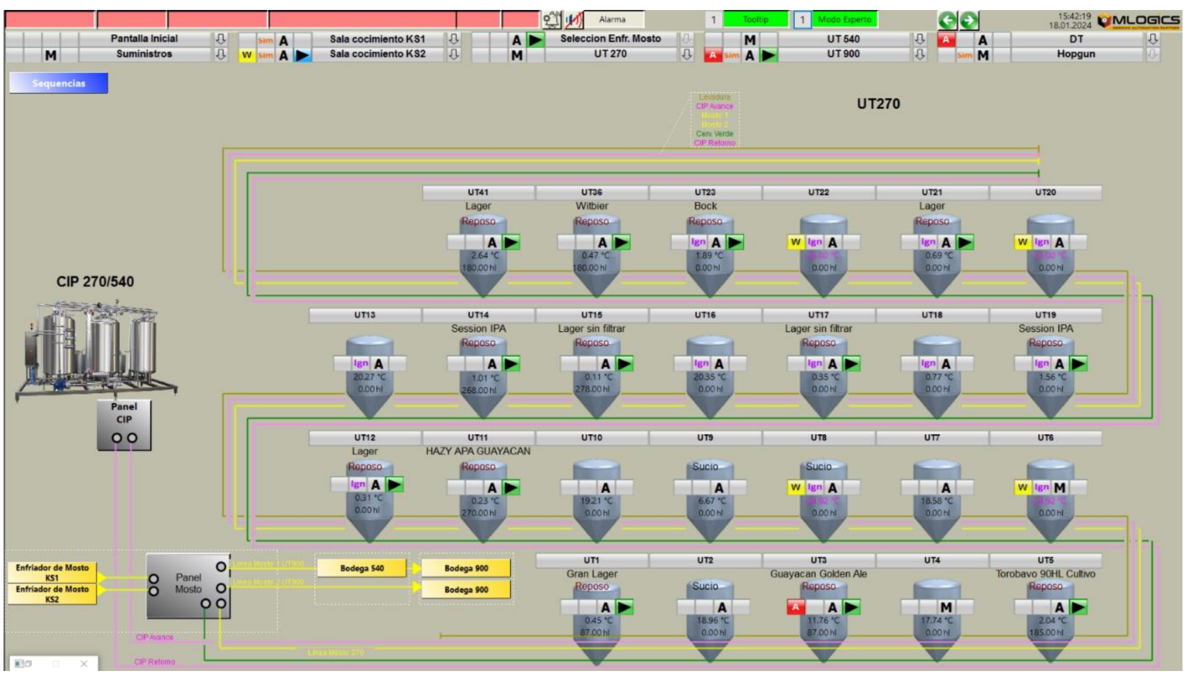

Illustration 9 Overview of the "new" 900hl fermentation/storage cellar

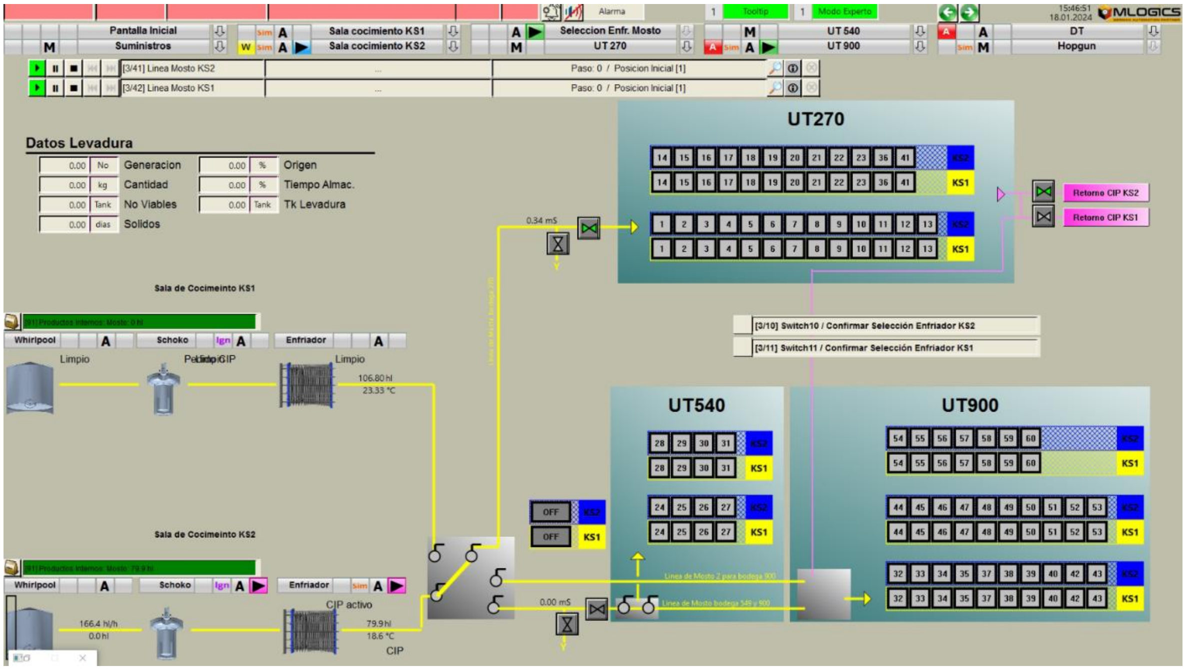

Illustration 10 Selection of tanks for wort coolers

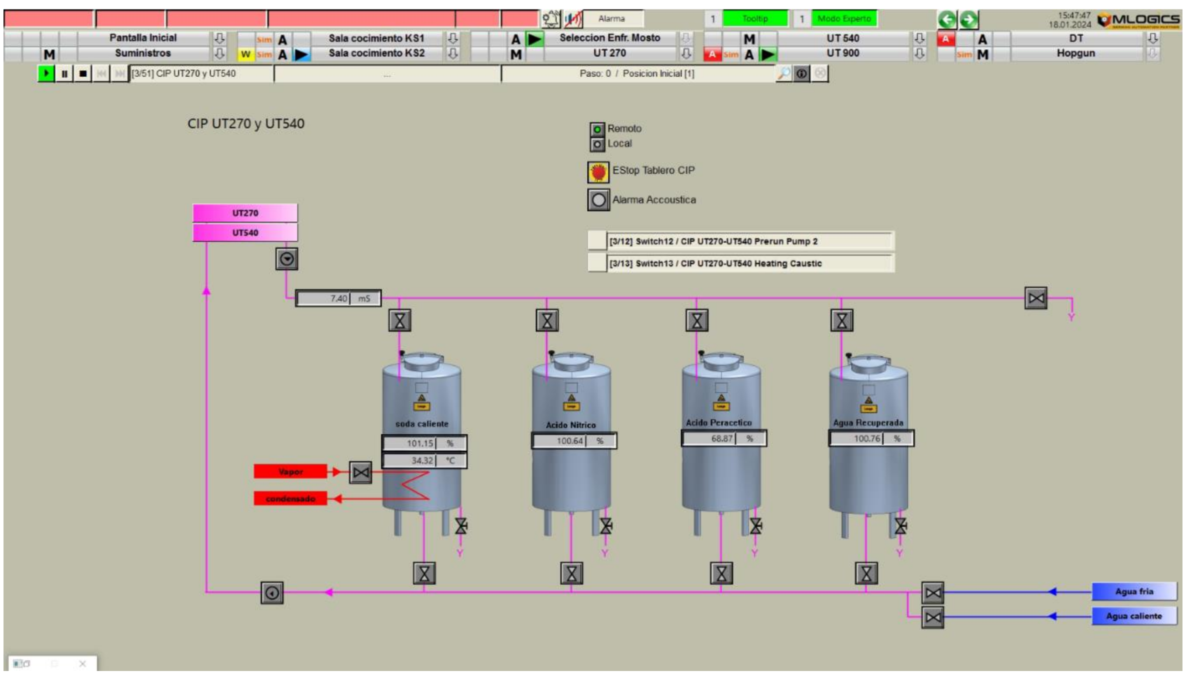

Illustration 11 CIP of the fermentation cellar

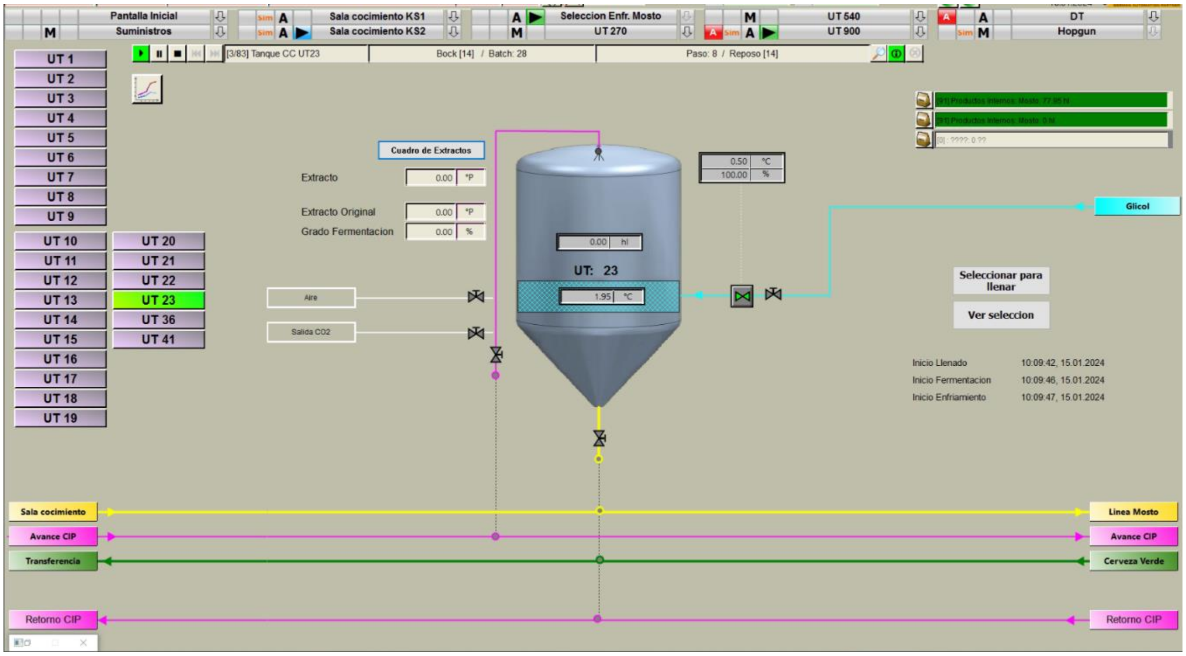

Illustration 12 Detail picture of a 900hl Unitank

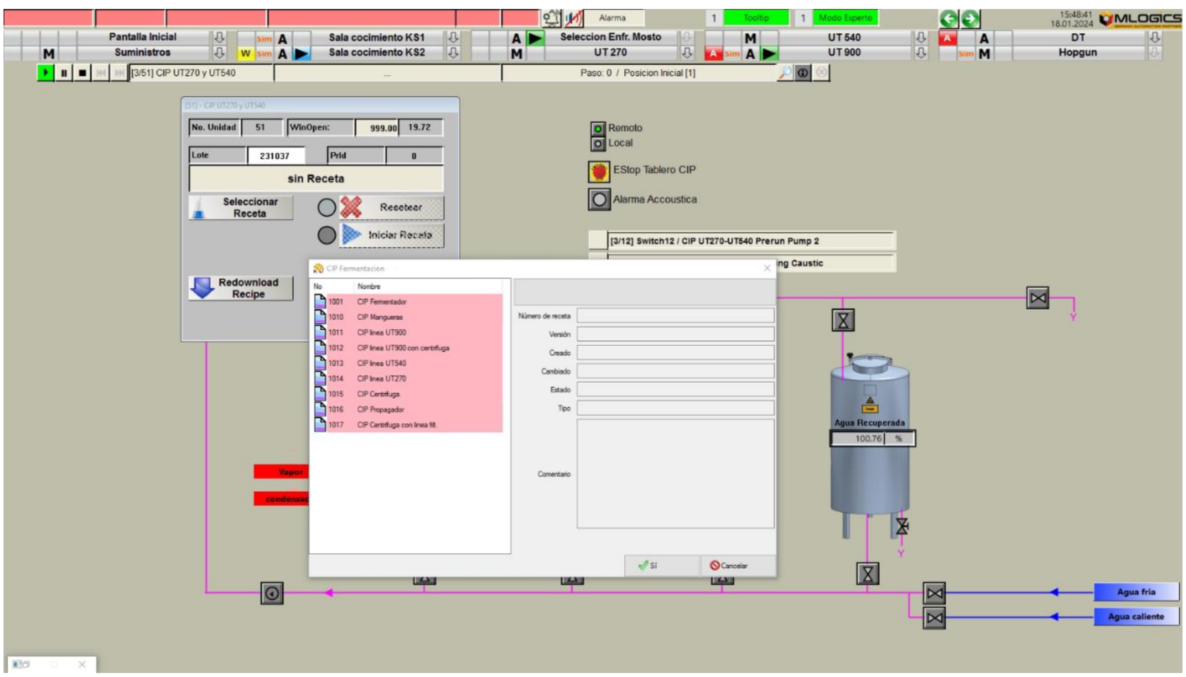

Illustration 13 Recipe start of a fermentation cellar cleaning

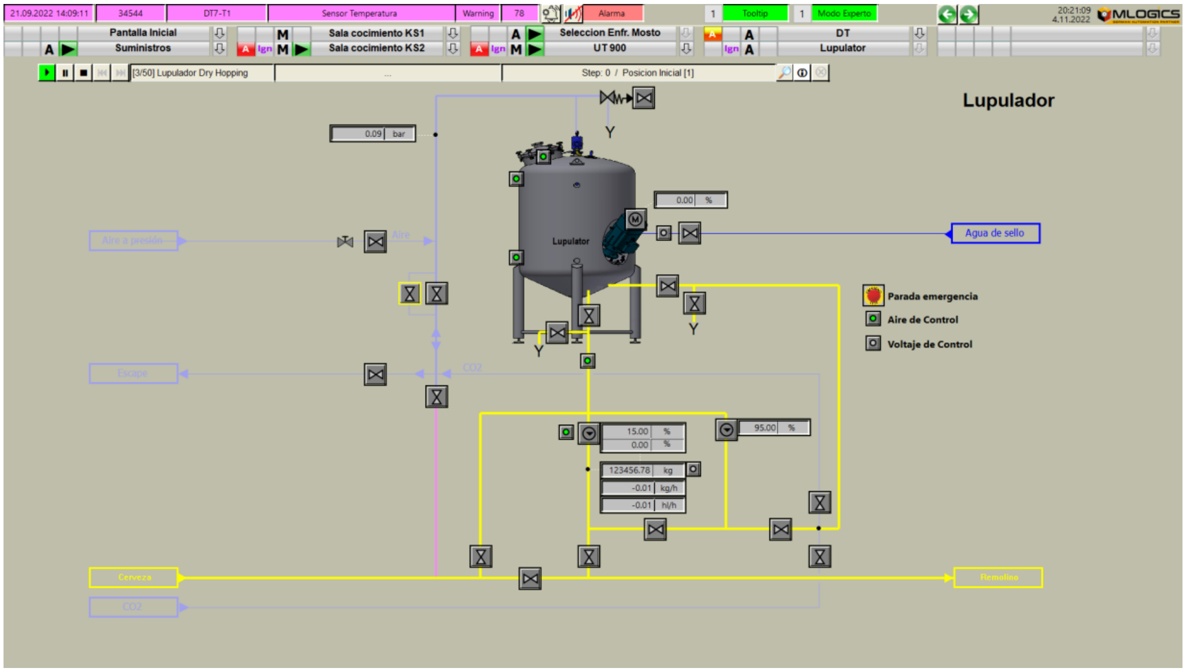

Illustration 14 "Bank Hopgun" Dry-Hopping Station

Cervecería Austral, Punta Arenas Chile

The "Cervecería Austral" is in the extreme south of Chile in Punta Arenas and is the southernmost medium-sized brewery in the world.

In the "Austral" brewery, the following were produced:

- New fermentation cellars with 30 tanks
- Existing "fermentation vats" integrated into the system
- An existing manual wort cooler integrated into the BatchXpert

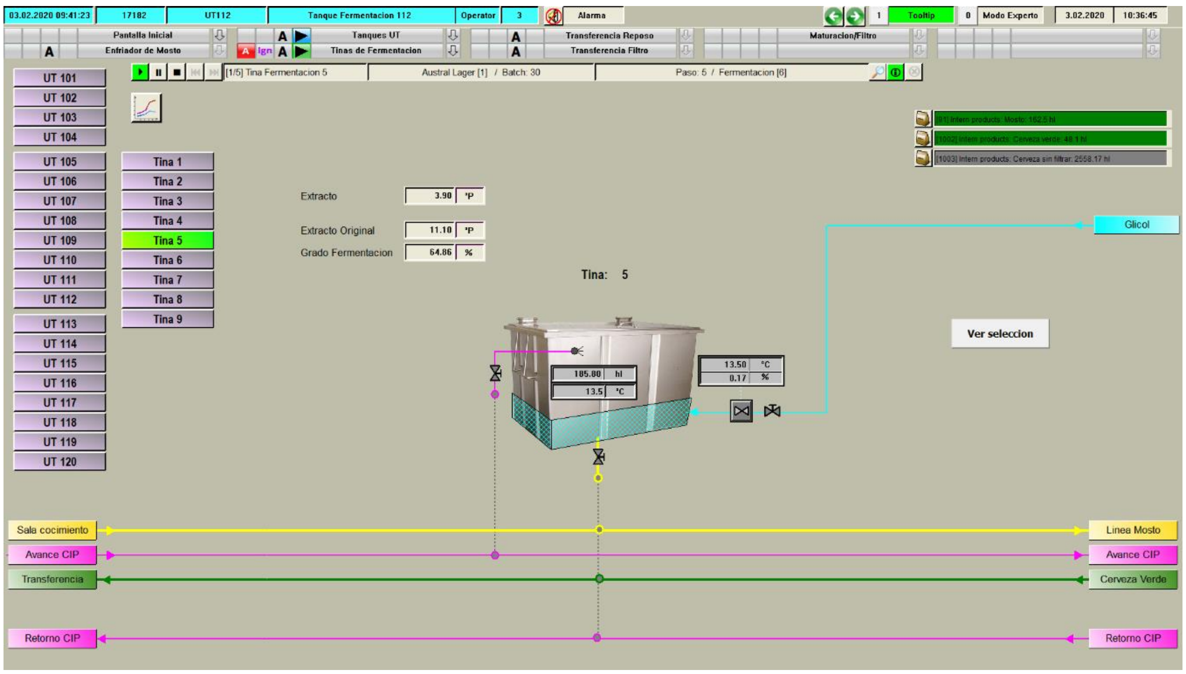

Illustration 15 A "fermentation vat"

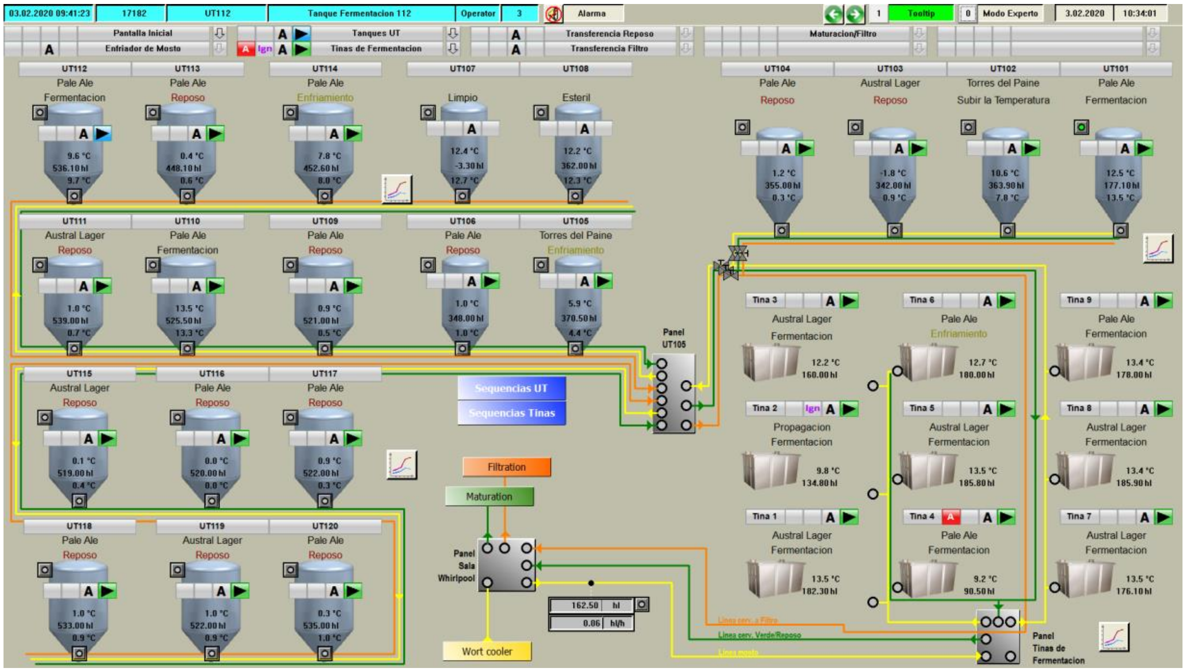

Illustration 16 Fermentation cellar overview

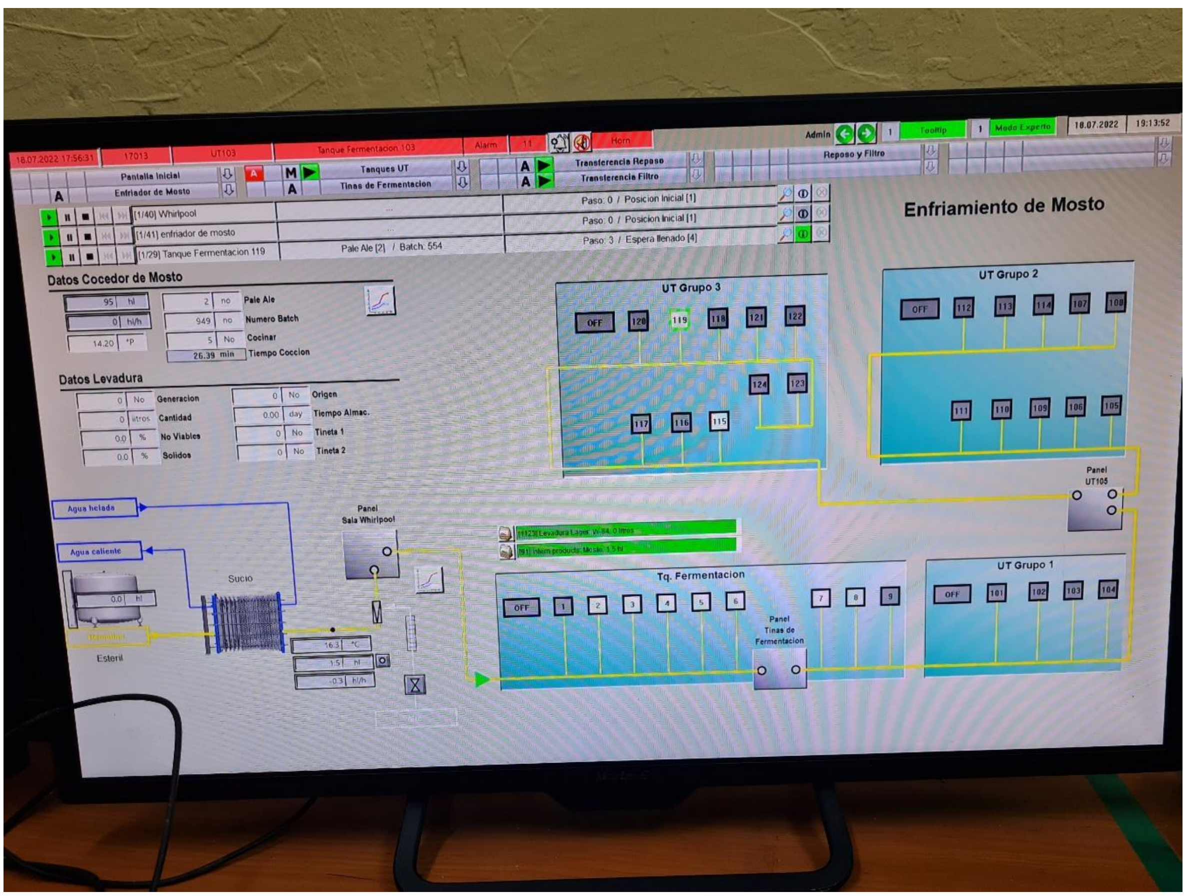

Illustration 17Wort cooler selection for the tanks to be filled

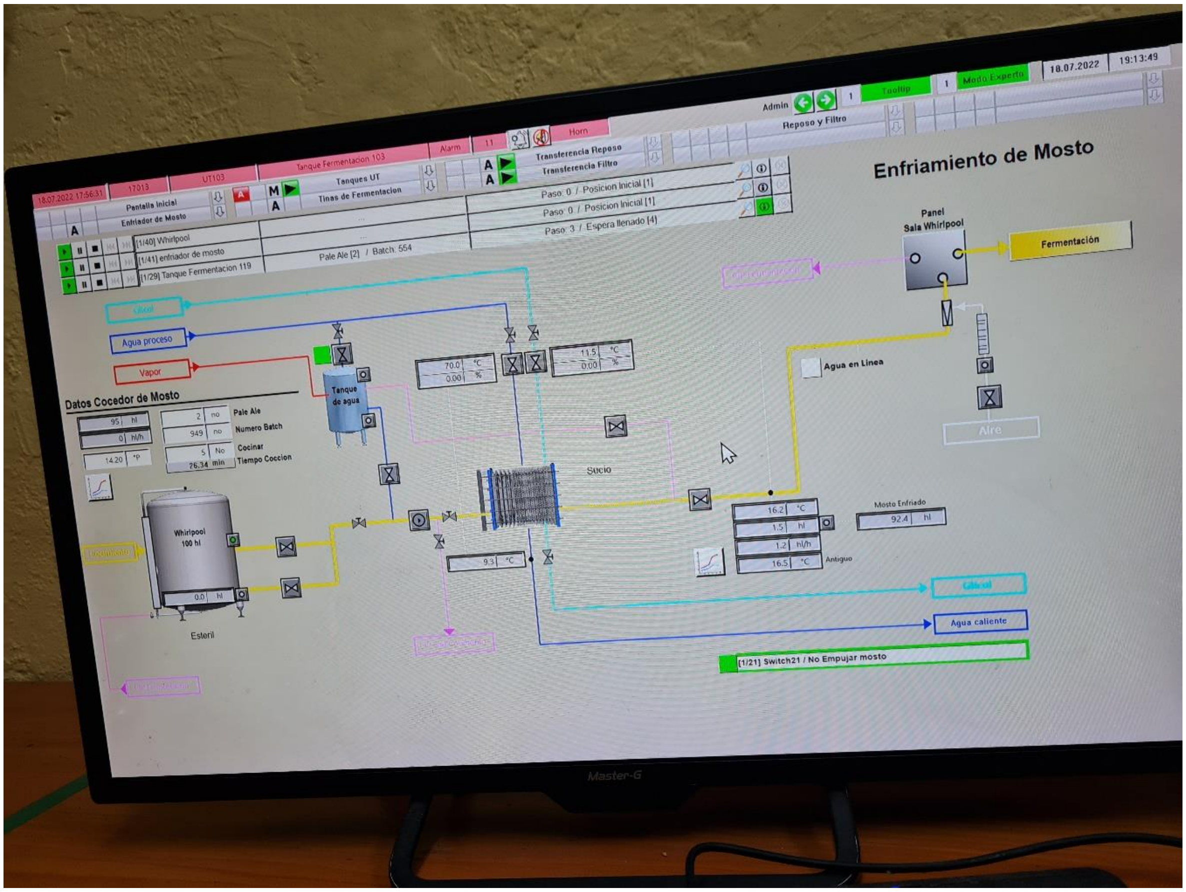

Illustration 18 The wort cooler

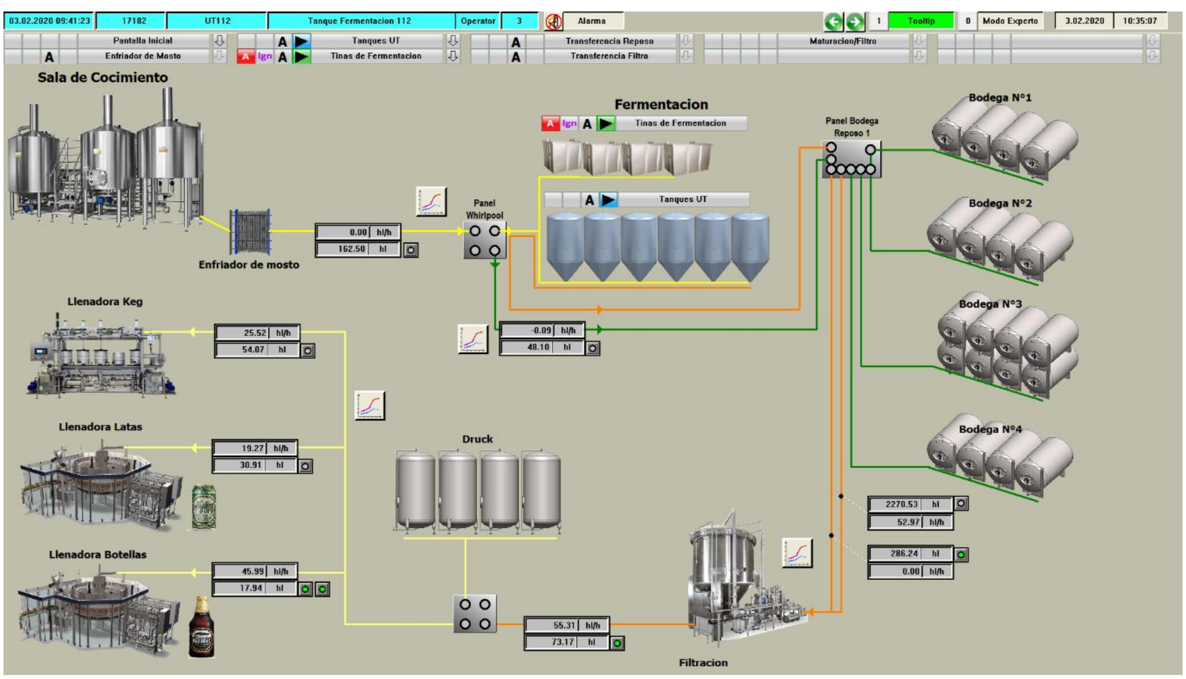

Illustration 19 Overview of the storage cellar

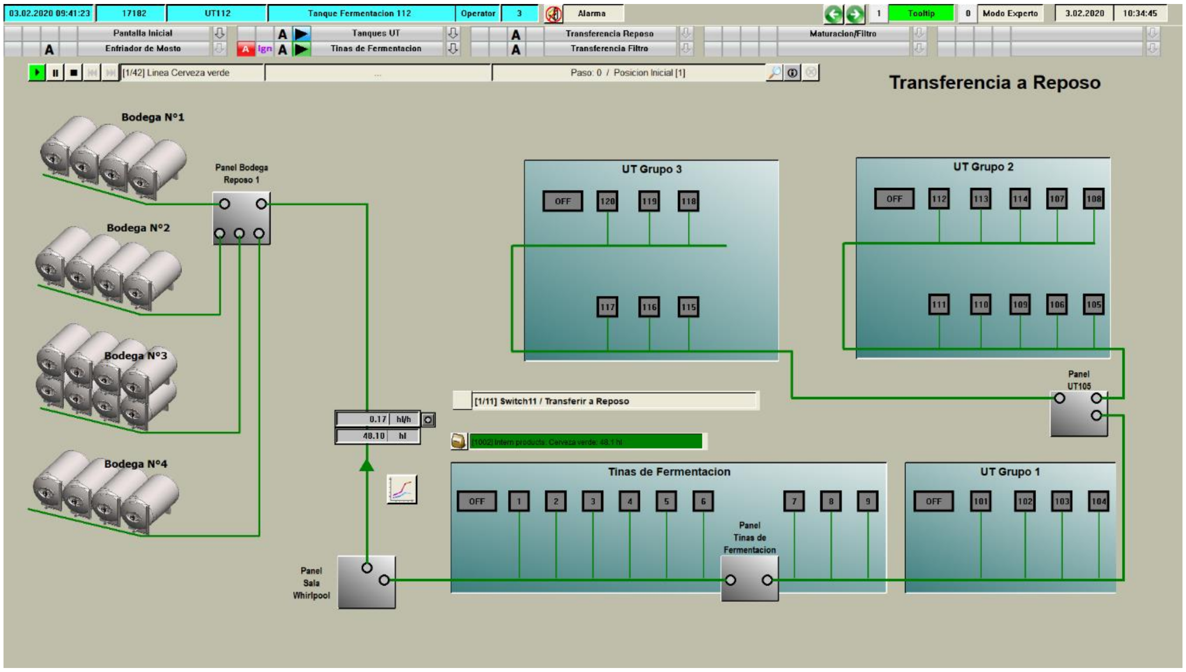

Illustration 20 Selection of green beer transfer

Illustration 21 A small 7 inch touch panel in the field

Heineken, Lima, Perú

The Heineken Brewery in Lima is a large brewery in which the fermentation cellar has been automated with the BatchXpert system. The brewery is currently undergoing further automation and the goal is to integrate the entire fermentation/storage cellar and filtration into the system by the end of 2025.

Currently:

- An existing fermentation cellar with xx tanks integrated into the system
- An existing yeast cellar with 4 yeast tanks integrated into the system
- A tunnel pasteurizer automated with "BatchXpert".

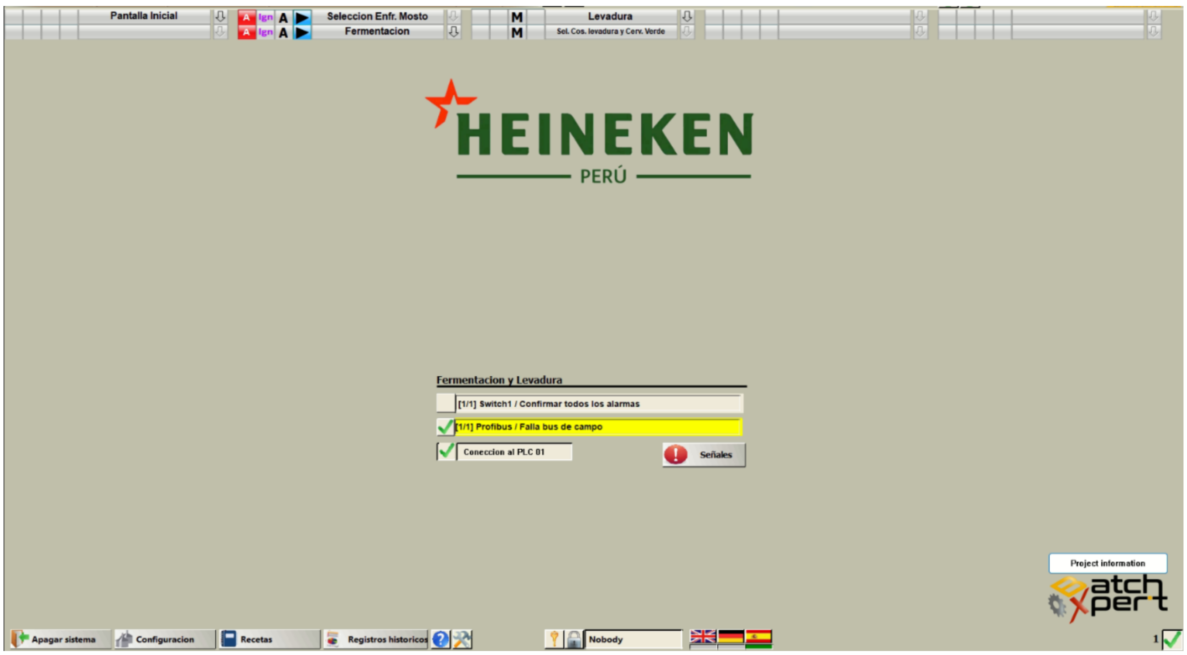

Illustration 22 Start screen of the system

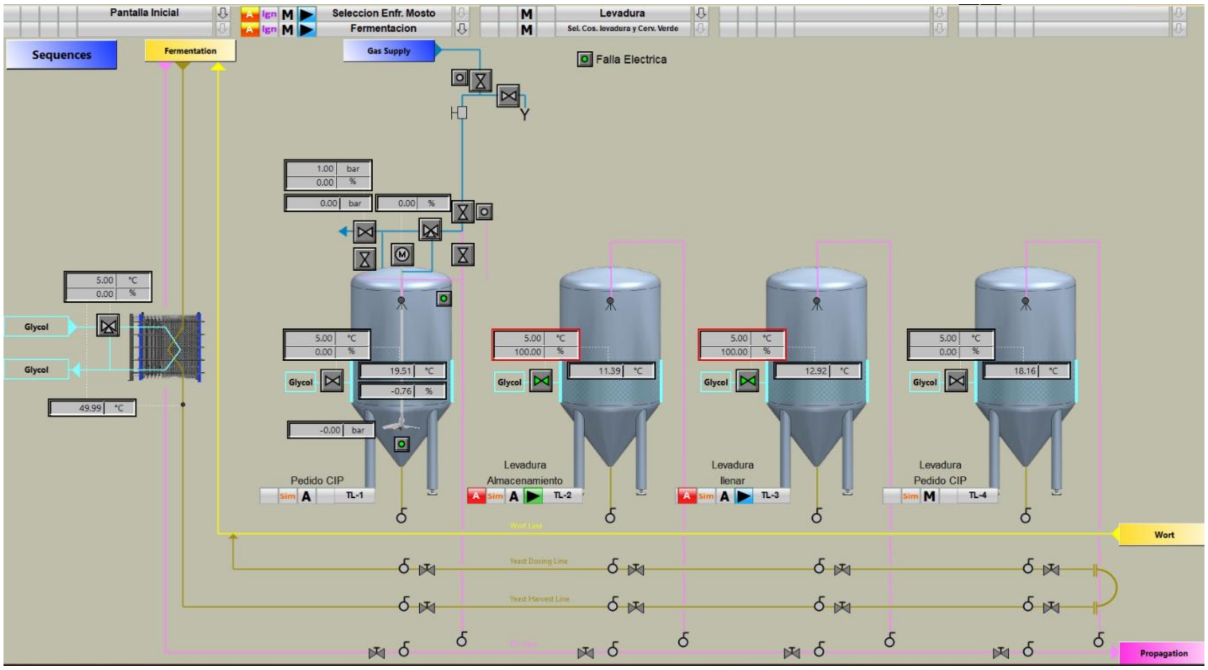

Illustration 23 The four yeast tanks, the first of which is equipped with an "Alfa Laval" system

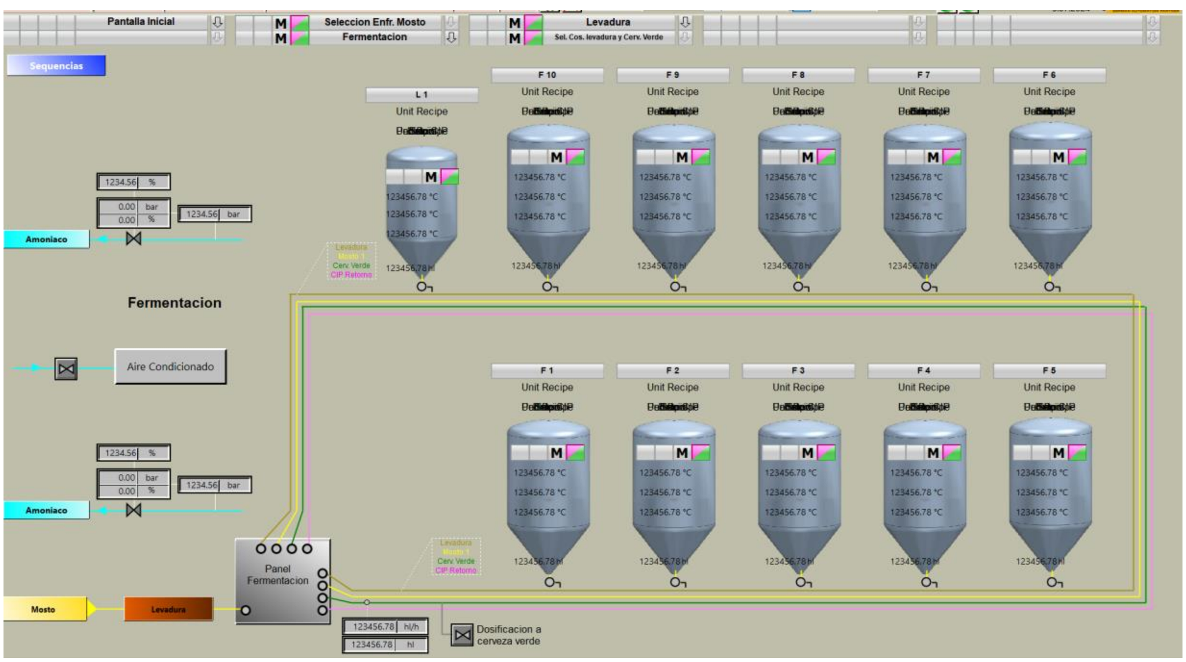

Illustration 24 Fermentation cellar. Unfortunately, no pictures of the running system were available here, which is why this is a simulation. However, this plant is in operation as it is

Tunnel Pasteur

The tunnel pasteurizer was automated as a "sand-alone" solution with our tunnel pasteurizer control. The visualization has a slightly different "look and fell" because it is a machine control system, but is basically a normal BatchXpert.

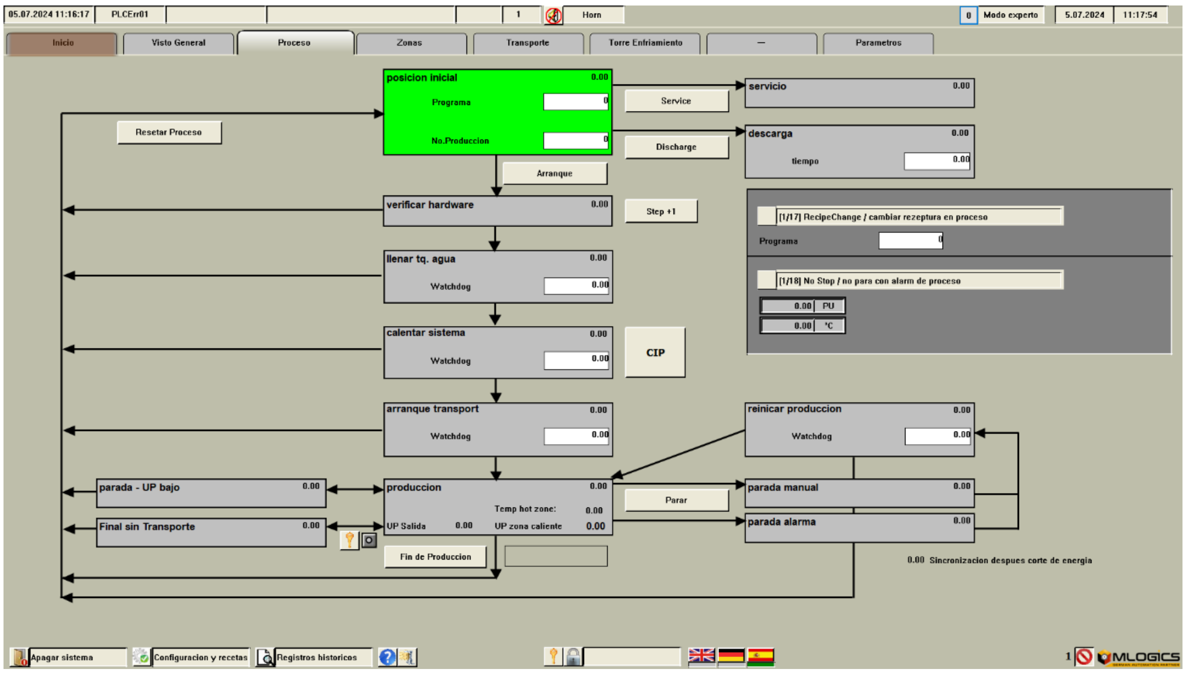

Illustration 25 Specialized process chain overview for tunnel pasteurizers

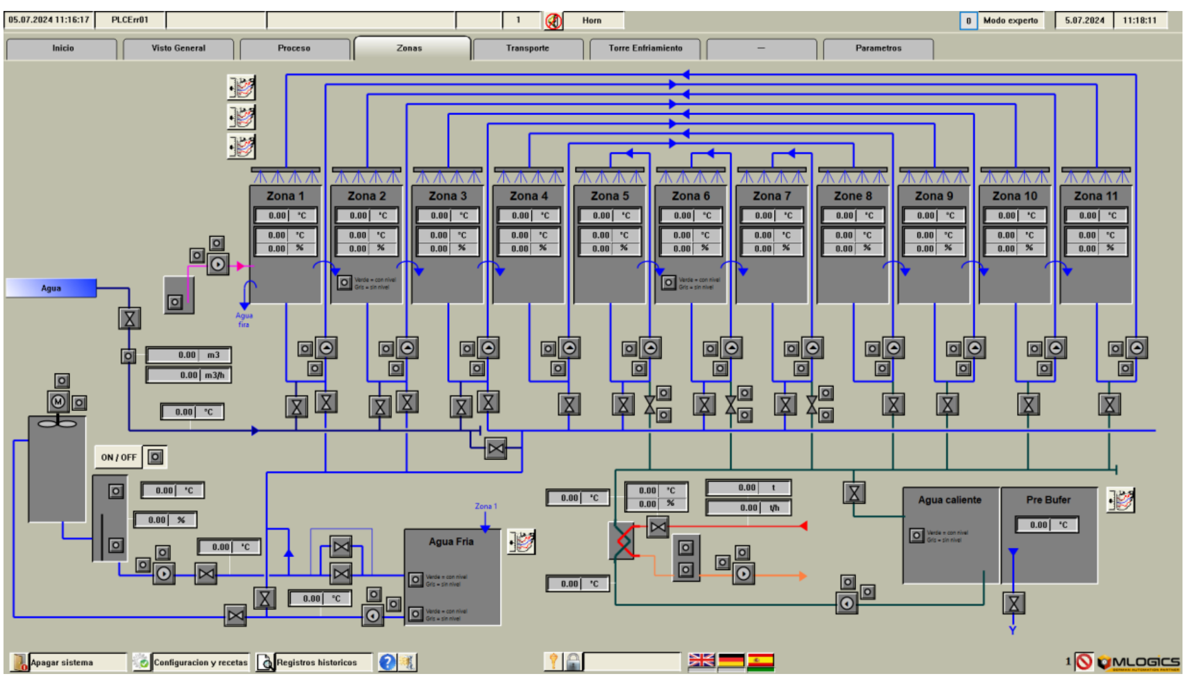

Illustration 26 Overview of all pasteurization zones

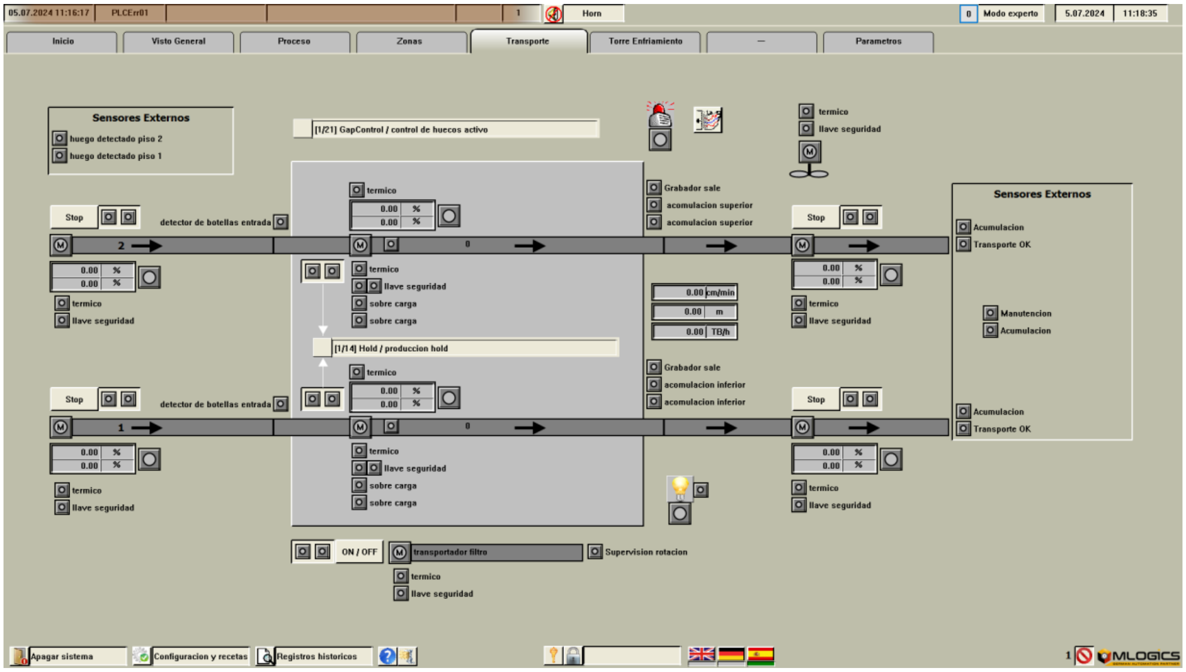

Illustration 27 the transport status of the machine