

A new winemaking technology: fermentation, aging and bottling without added additives and preservatives

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Abstract. auric infinity Technology introduces three new patented products designated for fermentation, aging and bottling without added additives and preservatives that have never been used in the winemaking industry. The auric infinity (custom pressure wooden fermentor for making and aging white and red still wines). The auric infinity HYBRID (custom pressure wooden fermentor paired with custom stainless steel pressure tank for making white and red, still and sparkling wines). The ABC anaerobic bottling closure that allows anaerobic filling through the closure for white and red, still and sparkling wines. This new technology is designed to make, age and bottle wine using only grapes, yeast and bacteria, eliminating the need for added additives and preservatives. This fully anaerobic system allows winemakers to make wines with fewer technological steps while preventing oxidation, contamination, and evaporation..

1. Introduction

Traditional barrel winemaking processes rely on additives, particularly sulphur dioxide (SO₂), to protect the wine from oxidation and microbial contamination.

During fermentation and aging, winemakers routinely remove barrel bungs to perform essential tasks like tasting and laboratory sampling, adjusting SO₂ levels, topping up the barrels, and stirring the lees.

Each intervention exposes the wine to oxygen, increasing the risk of oxidation, contamination and evaporation.

SO₂ adjustment is also required before bottling.

2. Objective

The primary goal of auric infinity Technology is to control oxidation, contamination, and evaporation during all steps of the winemaking process, from the grapes to the bottle, without adding additives or preservatives and without compromising the wine's quality regarding organoleptic characteristics and microbiological stability.

3. Implementation & Process

auric infinity and auric infinity HYBRID systems combine wood, stainless steel, advanced sealing mechanisms and pressure to create a sealed and controlled anaerobic environment, followed by anaerobic bottling.

auric infinity Technological protocol recommends using hyper-oxygenated juice, flash pasteurisation, commercial yeast, and *Lactobacillus plantarum* bacteria for a safe, secure white, red, and sparkling fermentation flowchart.

Laboratory, tasting samples, and bottling are performed anaerobically without oxidation and contamination using inert gases like N₂, CO₂ or Ar.

4. Technical Description

auric infinity Technology consists of three main products:

- 1) auric infinity (pressure wooden fermentor for white and red still wine)
- 2) auric infinity HYBRID (pressure wooden/stainless steel fermentor for white and red still and sparkling wine)
- 3) ABC Anaerobic Bottling Closure (anaerobic filling through the closure for white and red, still and sparkling wine)

4.1. auric infinity

First-ever sustainable stationary stainless-steel bung with clamp, pressure relief valve, gas inlet port, pressure gauge, height adjustable spear and cooling/heating coil mounted on custom pressure wooden barrel reinforced with food-grade silicone rods between staves, acrylic barrel heads with food-grade silicone straps and adjustable hoops with bolts and claps (Figure 1).

auric infinity allows making and aging white and red still wine without added additives and preservatives. It prevents wine oxidation, contamination and evaporation while allowing sample extraction without removing the bung.

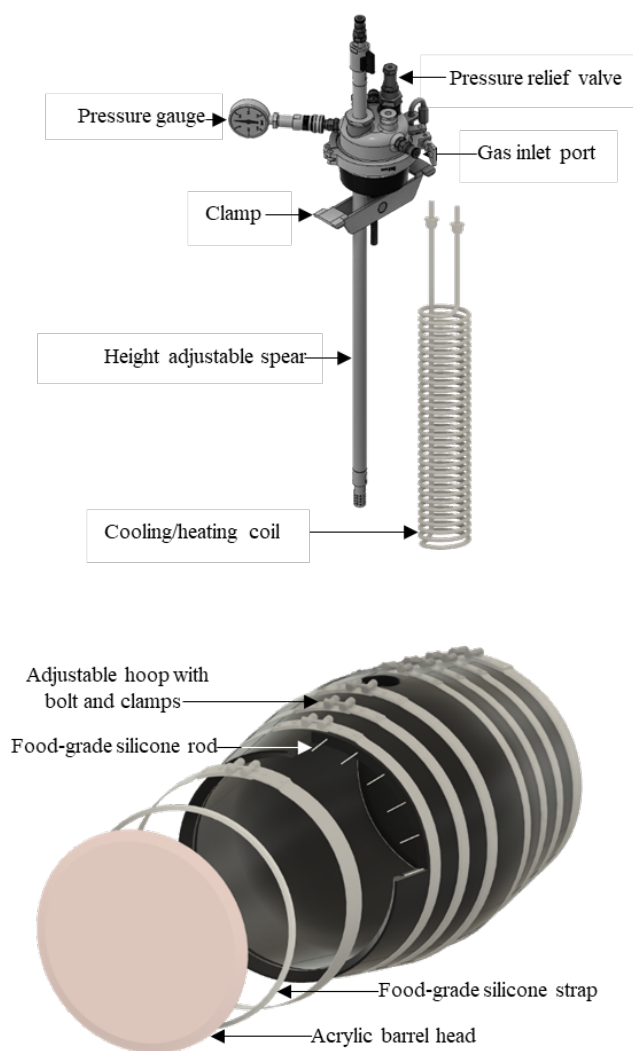


Figure 1. auric infinity

4.2. auric infinity HYBRID

First-ever custom pressure wooden fermentor paired with custom stainless-steel pressure tank and custom perforated filter (Figure 2).

auric infinity HYBRID allows making and aging white and red still and sparkling wine without added additives and preservatives. It can function in various conditions such as aerobic, anaerobic with or without pressure. It can

simultaneously support dual fermentation in wooden and stainless-steel pressure fermentors. By simply opening two valves, the two fermentations can be combined at any stage, either before or after fermentation completion. Two or more auric infinity HYBRIDS can be connected in series to facilitate continuous fermentation.

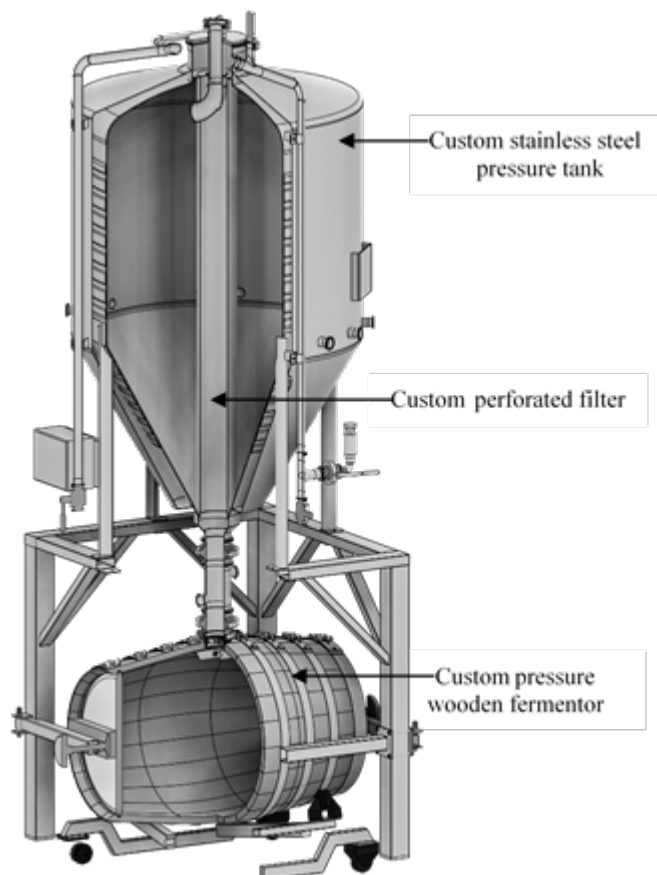


Figure 2. auric infinity HYBRID

4.3. ABC Anaerobic Bottling Closure

First-ever ABC Anaerobic Bottling Closure with stainless-steel spring, housing, gas inlet/outlet port, and liquid inlet/outlet port.

It offers a solution for anaerobic filling through the closure without adding preservatives to wine before bottling.

The filling head can also be used as a dispenser, allowing wine samples to be taken out of the bottle without removing the closure (Figure 3).

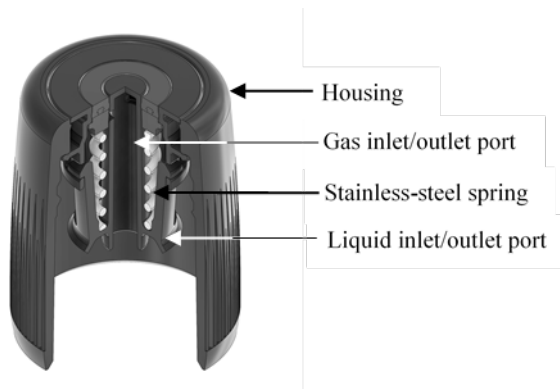


Figure 3. ABC Anaerobic Bottling Closure

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5. Advantages & Innovation

auric infinity Technology offers several benefits over conventional winemaking systems:

- Greater Flexibility: It supports various winemaking styles and multiple fermentation processes for still and sparkling wines without added additives and preservatives.
- Full control over oxidation, contamination and evaporation during winemaking technological processes and aging.
- Doesn't require topping up the ullages.
- Controlled fermentation: The cooling coil's presence controls temperature during fermentation, aging, and allows cold stabilisation inside the auric infinity.
- Empty barrels are cleaned with 85°C hot water and 100 Bar pressure using an orbital washer and filled with inert gases like N₂, CO₂ or Ar, enabling safe storage without SO₂.
- Increased Efficiency: Accelerates anaerobic aging under pressure without using SO₂.

By integrating these benefits, the system streamlines the winemaking process while ensuring high levels of quality and consistency.

6. References

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