

PLUVIATANK

THE CLASSIC CASCADE FERMENTER FROM HL 50 TO HL 1,200 (1320,86 TO 31,700.65 GAL)

In recent years, thanks to the implementation of new technologies, many devices have been developed and adopted to punch down the cap of the marc of fermenting musts that has risen to the top. Wine tank manufacturers have done their best to propose fermentation tanks of various types: rotary, blade, piston, with rakes, equipped with pumps, etc.. However, only Albrigi S.r.l. is able to offer its customers a range of 7 fermentation tanks, completely different from each other and able to meet the most varied needs of oenologists, dictated by new processing strategies or the quality of the grapes they are about to produce wine from.

The punch-down technique is certainly one of the oldest in the oenological tradition. Laborde notes that this practice was known as early as the 1700s.

The main purpose of this intervention is to extract polyphenolic substances from the crushed grape.

According to studies by Prof. M. Feuillat of the University of Dijon, the breakdown of phenolic compounds in grapes can be summarized as follows: (average over 12 grape varieties)

- Skins: 36% tannins and coloring substances
- Grape seeds: 38% tannins
- Pulp: 6% coloring substance

From the above, it is easy to understand the importance of processing the marc cap, even more so if we consider that "in red wine-making, anthocyanins are extracted during the first few days of maceration and, consequently, the concentration of monomeric anthocyanins in the fermenting must quickly reaches its maximum value". (Mangani- Favilli- Buscioni- Vicenzini, University of Florence).

Therefore, the use of different strategies or the availability of tanks that allow the programming of customizable processing cycles is critical to the proper processing of red musts.

Several variables contribute to the diffusion kinetics, including chemical ones, such as ethanol content, acetaldehyde, and probably other fermentation products, as well as physical phenomena, such as systems and mechanical interventions applied directly to the marc that has risen to the top. These latest statements by Prof. Di Stefano confirm the need for equipment that can be programmed both in terms of mode and time.

PLUVITANK, equipped with the most advanced technological devices and applications, belongs to the new generation of tanks.

The design innovation of this fermenter lies in the fact that gravity is harnessed to leach the marc cap.

Thanks to a tank located at the top of the fermenter, the cap can be completely submerged in a few seconds by opening a special valve with a programmable must volume.

The particular configuration of the valve forces the outflowing must to spread over the entire surface of the marc that has risen to the top, achieving immediate submersion of the entire cap, making the process particularly effective and promoting excellent dissolution of aromatic and polyphenolic substances.

Pumping-over operations, understood as the leaching of the marc, "are the main parameter in terms of the diffusive phenomena that occur during maceration. The frequency and timing of these operations can drastically alter the

characteristics of the final product. It should be noted, however, that as with all mechanical operations, if performed incorrectly, they can cause damage and thus dilaceration of the grape skin." *Vivas*. The lees, as a by-product, significantly increase production costs, slow down static clarification processes, and adsorb significant amounts of anthocyanins due to its solid nature.

In line with these statements, ALBRIGI Technologie has equipped PLUVIATANK with a software connected to a control panel that allows customizing the management of punch-down operations in terms of intensity (volume of must used) and frequency. The same panel can also control:

- The temperature, as PLUVIATANK is equipped with external thermal jackets,
- The operation of the sash door, a practical and functional accessory that also allows obtaining spatial openings,
- The running and stopping of the marc extraction blade.

The easily accessible upper tank can also be used as a mixer when adding products to the fermenting mass, avoiding the tedious implementation of temporary piping with the interposition of external pumps.

When the fermentation period is over, PLUVIATANK becomes a normal storage tank, as the internal equipment can be quickly and easily be removed.

The possibility of equipping PLUVIATANK with a micro-macro-oxygenation station, (optional) allows it to perform:

- Macro-oxygenation during fermentation to ensure the vitality and renewal of the yeast cells, which ferment for a long time, even for many days in the case of dried grapes, resulting in a high alcohol content.
- Micro-oxygenation as fermentation comes to an end. The purpose of this technique is summarized by Prof. Moutounet's statement: "It is well known that phenolic compounds are mainly responsible for the consumption of oxygen in wine. A key compound in the development of red wine pigmentation is acetaldehyde, which originates from the oxidation of ethanol, which acts as a bridge in the condensation reactions between anthocyanins and tannins, leading to the formation of highly colored and stable compounds. Another fundamental advantage of the micro-oxygenation technique is the disappearance of plant traces and an increase in reductive power thanks to the structuring and harmonizing stages, which lead to an increase in aromatic complexity."

