

## FOLLTANK – MONOFOLLTANK

### FOLLTANK - THE AUTOMATIC PUNCHING-DOWN FERMENTATION TANK: 15 HL TO 300 HL

Punching down is without a doubt one of the oldest techniques used in winemaking. Laborde observed it being used as far back at the 1700s. The main objective of this operation is to extract the polyphenolic substances contained in the grape-solids cap. According to studies conducted by Prof. M. Feuillat at the University of Dijon, the proportions of the phenolic compounds in grapes can be summarized as follows:  
(average from 12 vines)

- Skins 36% of tannins and pigments
- Seeds 38% of tannins
- Pulp 6% of pigments

The above clearly shows the vital role the treatment of the grape solids cap (or marc) plays in winemaking, even more so if you consider that “in the vinification of red wine the anthocyanins are extracted during the first days of maceration and, as a result, the concentration of the monomeric anthocyanins in the fermenting must rapidly reaches its highest level.” Mangani, Favilli, Buscioni, Vicentini, University of Florence.

Adopting different strategies or having winemaking mechanisms whose cycles can be programmed to meet different needs is, therefore, fundamental to the proper processing of red musts. Different variables come to play in the kinetics of diffusion, there are those of a chemical nature, such as the amount of ethanol, acetaldehyde and possibly other products of fermentation; and physical phenomena, such as the systems and mechanical interventions performed directly on the floating cap. These last statements by Prof. Di Stefano serve to validate the need for equipment which can be programmed both for method and timing.

The winemaking tanks of the Folltank series have been designed to fully satisfy the needs of modern oenology. They are equipped with a Programmable Logic Controller (PLC), which allows them to be programmed to intervene on the cap at various times during maceration, in keeping with the desires of the enologist. Considering the basic components of the pressed grapes - the cap as a solute, and the must as the solvent – it is easy to understand the importance of the punching-down technique needed to obtain the maximum migration of substances between the solid part (the cap) and the liquid part (the must).

The one or more hydraulic pistons can perform punching down operations delicately and softly so as to prevent the formation of unwanted lees. Ideal for both tender-skin and tough-skin grape varieties, the pistons simply and elegantly break up the cap and fold it delicately back into the fermenting must below. The model with the single piston (Monofolltank) is well suited to the processing of caps created from fresh grapes. It comes equipped with a mechanism which guides the rotation of the blade and can change position after each punching-down movement, thus making sure that, when the cycle is complete, the entirety of the cap has been broken up and punched down into the must. The four-piston model (Folltank) was designed, after lengthy experimentation, especially for punching down the caps that rise when making wine with withered or severely drained grapes. The thickness of the cap, in this case, needs to be handled in a different way. The long cylinders and special shape of the dishes – conical, self-cleaning and with wide radiuses – ensure complete and total coverage of the entire tank. Even in these extreme

cases, the unparalleled quality of the smooth finish of the dishes prevents the grape solids from adhering to the moving parts, ensuring they are always clean and unencumbered.

Another special feature of Folltank is that the pistons can be set to alternate, thus resulting in the complete disintegration of the cap of grape solids and performing to the exact specifications established by the enologist.

If we take a close look at the actions of a single Folltank dish, it becomes clear, especially on the portion of floating cap, that their actions resemble the characteristic processes of Délestage (a practice initially only favoured by the French but which Italian winemakers have also adopted thanks to the efforts of Prof Delteil of the ICV in Mopntpelier). Because of the resistance offered by the underlying must, the pressure exerted on the cap during the descending phase forces compounds remaining in the grape skins to come out and thus further enriches the wine with substances which would otherwise have been difficult to leach out. The possibility of adding an optional macro-micro-oxygenation station to Folltank and Monofolltank, also permits:

- Macro-oxygenation during long term fermentation, as in the case of wine made with withered grapes, leading to high alcohol content wines.
- Micro-oxygenation during the final fermentation phase.

The aim of the latter technique can be summed up in the words of Prof. Moutounet: "It is commonly known that phenolic compounds are mainly responsible for the consumption of the wine's oxygen. After the effect of the oxygen, they undergo various chemical transformations. A key compound in the evolution of the pigmentation of red wines is acetaldehyde, which has its origins in the oxidation of ethanol which, acting as a bridge in the condensation reactions between anthocyanins and tannins, leads to the formation of highly coloured and stable compounds. Another fundamental benefit of micro-oxygenation is the disappearance of plant traces and an increase of reductive power thanks to stages of structuring and harmonization which lead to an increase in aromatic complexity."

#### View of a patented Albrigi Folltank model

