



Ganimede®

simply a better wine...

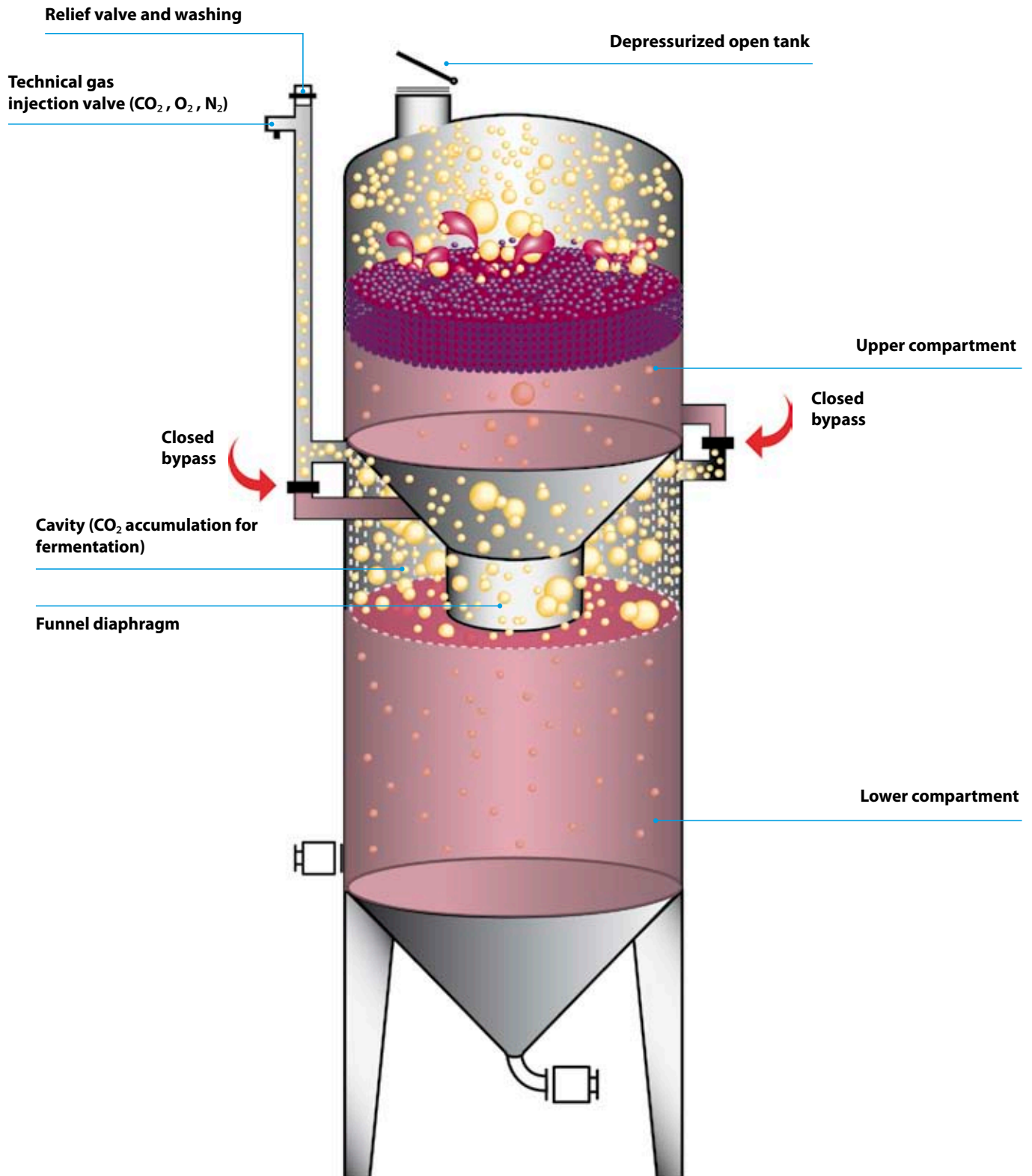
Il fermentatore brevettato - Le fermenteur breveté - El fermentador patentado - The patented fermenter - Patentierte Gärbehälter



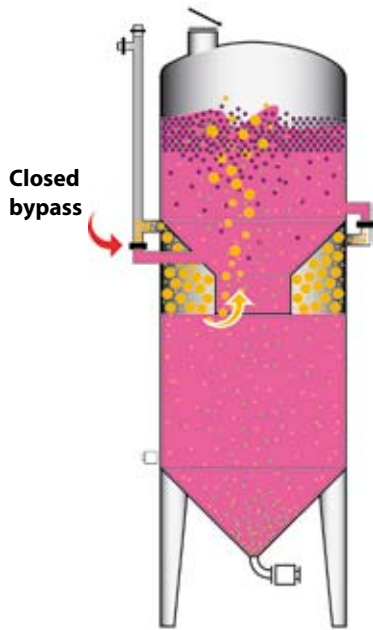
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Ganimede[®]

the innovative fermenter!



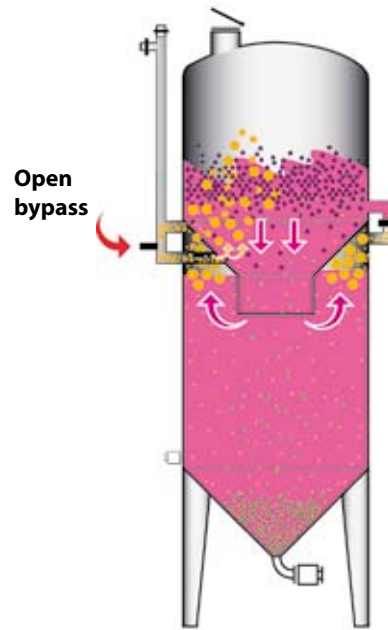
Stages of winemaking using the Metodo Ganimede®



1

1. Cavity saturation

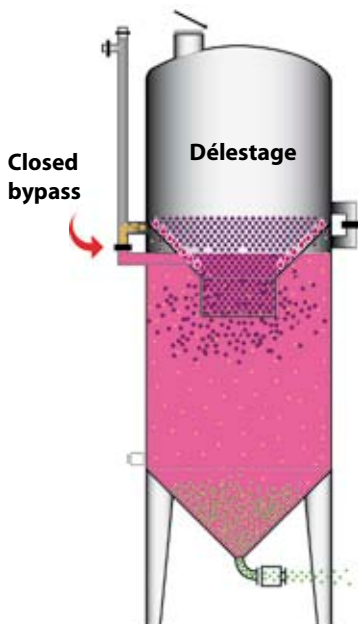
Filling can be performed either from above, or from the total discharge valve or from the partial discharge valve. During the rising of the must, the cavity between the outer casing and the funnel diaphragm remains empty because the air, unable to escape through the closed bypass, prevents the cavity from being filled. The grape marcs accumulate on the surface to create the cap. The carbon dioxide produced by the fermentation process quickly takes the place of the air in the cavity. As soon as the environment is saturated, the exceeding gas goes out by overflowing and being under pressure it creates large bubbles through the diaphragm neck, resulting in a constant restirring of the grape marcs that will always be saturated with the liquid and well shelled. Such restirring causes the fall by gravity of the grape seeds to the bottom.



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2. Bypass opening

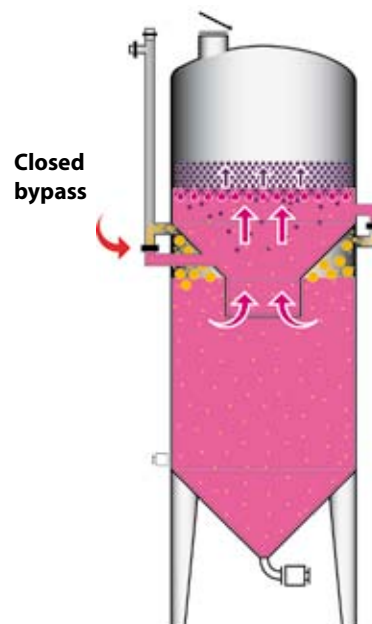
The opening of the bypass causes a more massive action, releasing an enormous amount of gas accumulated in the cavity directly on the grape marcs, which are flooded and deeply re-stirred, resulting in an effective yet smooth breakdown of the cap, preventing mechanical actions that may lead to the forming of lees. The grape seeds emerged can be extracted in large quantities from the bottom through the total discharge valve.



3

3. Délestage.

As soon as the gas goes out, the cavity is flooded with the must causing a sudden lowering of the level. The grape marcs saturated with liquid continue to release noble substances extracted from the skins, thus repeating the typical stage of délestage static draining, in a controlled environment and without the use of pumps.



4

4. Leaching and static draining

Once the bypass is closed, the carbon dioxide from the fermentation process re-accumulates in the cavity causing a new rising of the level, which, by pushing upward the grape marcs collected on the surface, results in a further stage of static draining that continues the leaching process and allows the grape marcs to release an increasing quantity of substances to the must. The gas saturates the cavity once again and the whole sequence can be repeated whenever it is deemed appropriate.



A patented wine making system.

The revolutionary and patented wine making system called **Metodo Ganimede®** is the only one capable of taking advantage of the free energy of the nature in order to effectively extract the noble substances contained in the skins. This huge energy potential represented by the fermentation gas (40/50 liters per each liter of must) facilitates the wine maker's job.

Metodo Ganimede® is a technology that encompasses simplicity, cost effectiveness and versatility!

A selective and efficient extraction.

Metodo Ganimede® allows the efficient and selective extraction of anthocyanins and polyphenols without the need for any strong mechanical action that could remove herbaceous aromas and bitter and astringent flavors. **The grape marcs cap is stirred evenly: no preferential channels form.**

No pumps: all the energy needed originates from the natural CO₂ of the fermentation process.

Thanks to the energy of the carbon dioxide produced by the fermentation process, **Metodo Ganimede®** allows re-stirring cycles/délestage without the use of pumps.



Simply, a better wine

Tasting is key to our success!

Although chemical analyses show some interesting quantitative differences compared to traditional methods (such as greater color intensity), **comparative tasting allows us to clearly differentiate ourselves.**

More aromatic wines. More delicate tannins

The absence of grinding and passage to the pump, a cap constantly soaked with liquid, soft and delicate stirring, the ability to evacuate grape seeds, controlled and more uniform temperatures...

All these features, which are unique of the **Metodo Ganimede®** ensure **fruity wines, rich in color and with a phenolic structure that, although stronger, does not harden them and makes them suitable for both consumption and ageing.**

The organoleptic characteristics obtained thanks to **Metodo Ganimede®** reflect exactly what the current demand on the market is: wines that are round, smooth, and not astringent!

Production costs considerably reduced.

Complete automation, versatility, ease of use, absence of pumps, ease of cleaning, quick fermentation speed (at least 30% faster at the same temperature conditions), the possibility of multiple refills, microbiological and operation safety (protected environment), lower production cost per liter respect to other systems and the significant reduction in the ageing costs... make **Metodo Ganimede®** the ideal winery tool. **Labor and electricity needs are considerably reduced.**

Metodo Ganimede® Versatility

Metodo Ganimede® is suitable for use in the winemaking of red wines and in the maceration of white and rosé wines.

Metodo Ganimede® allows wine storage with the possibility to exploit it as "always full" by injecting inert gas below the diaphragm. is particularly suitable for pre-fermentative or post-fermentative skin contact maceration

Metodo Ganimede® allows an even more effective "bâtonnage" of wines aged on yeasts (using external technical gas and the exploitation of the contact surface offered by the diaphragm).

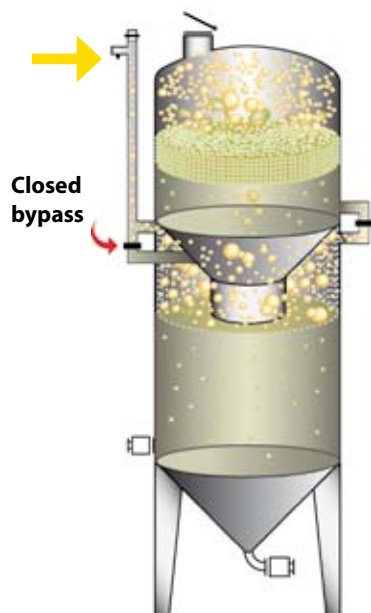
Metodo Ganimede®: gas-powered quality.



Metodo Ganimede® allows the introduction of technical gases through a special valve directly into the cavity below the diaphragm. This allows obtaining a more effective action than the one obtainable in a traditional tank. With **Metodo Ganimede®** the chemical and physical conditions necessary for the proper dissolution of gas in liquid (pressure, surface and contact time, temperature) are met.

1. The gas introduced is held below the diaphragm and it remains in close contact with the mass of liquid (about 85% of the liquid surface is in contact with the gas);
2. The pressure exerted by the liquid located above the diaphragm helps the dissolution of the gas;
3. The gas dissolved in the liquid combined with the mixing and homogenization action typical of the system will perform its action (extractive/solvent, antibacterial, antioxidant) over the entire mass (100% of the product!) and it will do so effectively.

The introduction of technical gases in most winemaking systems is somewhat empiric and difficult to quantify. An external gas, once introduced in a liquid, is unable to distribute itself in an optimal and homogeneous way over the entire available mass. In fact, it is prone to go out quickly rising vertically as a column (a physical characteristic of gases) and thus it affects only a marginal portion of the product.



SO₂ free Dynamic Skin Maceration for white and rosé wines: more fragrance!

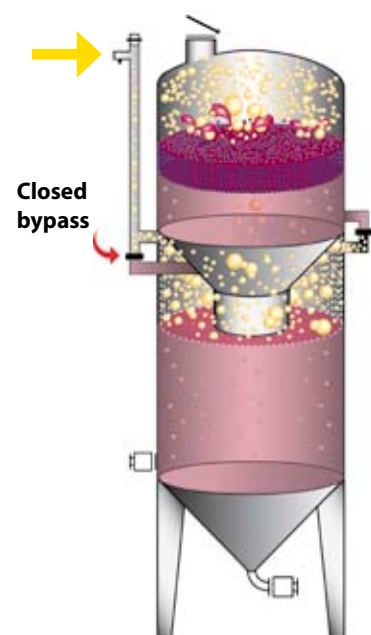
Many winemakers use the **Metodo Ganimede®** successfully thanks to a relatively short (6 - 12 hours) cold maceration process, which produces very aromatic white wines: there is an effective extraction of just the desired components. Gas dissolution in the must allows for a superior extraction and antioxidant effect respect to the one achievable through simple saturation in a traditional tank. The continuous injection of a small amount of CO₂ below the diaphragm allows a gentle and effective homogenization of the liquid with the grape marcs, resulting in an excellent, fast and selective extraction of aromatic components and their precursors. All this is useful to prevent the risk of extracting herbaceous aromas and bitter and vegetable flavors.



Cap in white maceration



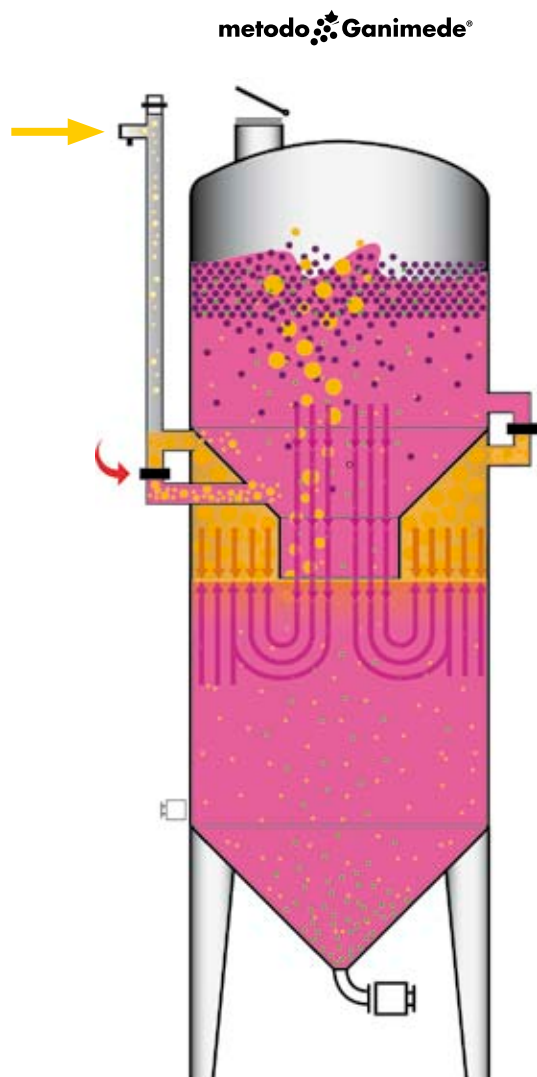
Cap in red maceration



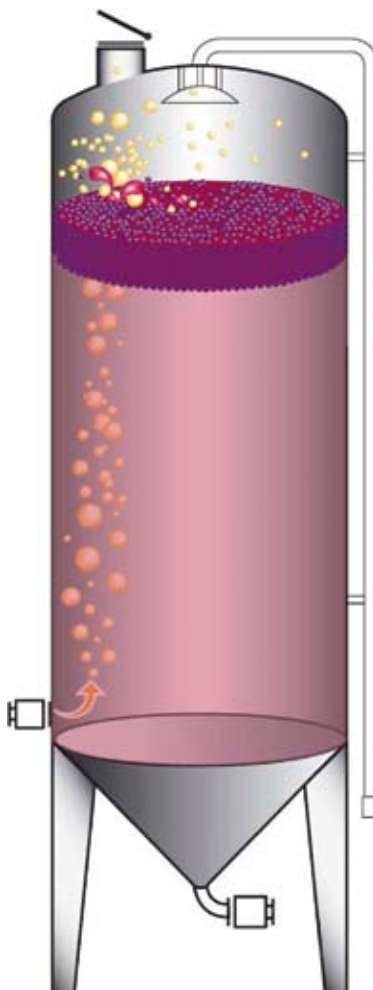
Cold Pre-fermentative Maceration for red wines: more color and fruity flavors!

Metodo Ganimede® is particularly suitable for the cold pre-fermentative maceration of red wines. This technology allows obtaining more aromatic and coloring substances-rich wines. The dissolution of CO₂ offers a good antioxidant protection of must and facilitates a better extraction of water-soluble compounds (mainly chemical precursors of anthocyanins and aromas). Moreover, the injection of gas below the diaphragm allows a good homogenization of the must, without using pumps. If a more vigorous stirring is necessary, just open the bypasses. The exchange between liquid and skins ensures right from this preliminary stage a rich extraction of tannins, which quickly polymerized with anthocyanins, thereby ensuring stability that otherwise could not be obtained. Finally, this results into more fruity wines with softer tannins. Given that there is no passage through the pump (and therefore grinding of the product is prevented) the risk to extract herbaceous and bitter components is virtually inexistent.

Ganimede®: the only method that allows the scientific management of technical gases



TRADITIONAL



Only by using **Metodo Ganimede®** technical gases injected through a special valve can remain inside the cavity in contact with the liquid mass as long as we like, under pressure generated by the thrust of the liquid mass (0.2/0.4 bar) and in close contact with the large contact surface between gas and must (80/85%). In traditional systems, instead, all gases injected go through the liquid quickly, without being able to stay in contact with it for sufficient time, dispersing very quickly in the environment and affecting only a limited portion of the mass, which, by not exerting any pressure on the gas itself, fail to mix with it. Moreover, let's not even mention certain practices concerning an indiscriminate and dangerous exposure of the liquid to the external environment, too often empirically defined as «oxygenation of the mass», without the possibility of implementing a scientific management process or adequately monitor its effects.

The diagram shows how in traditional systems the gases injected go quickly through the liquid, without being able to remain in contact with it for the right amount of time, dissolving very soon in the environment and affecting only a limited part of the mass, which by not exerting any pressure on the gas itself, cannot mix with it.

Henry's law

Using **Ganimede®** fermenters, managing technical gases can take place scientifically thanks to the physical principle known as "Henry's Law."

The technical gas injected below the diaphragm, under pressure from the liquid above, will exercise on the liquid itself a pressure equal to the one it has received.

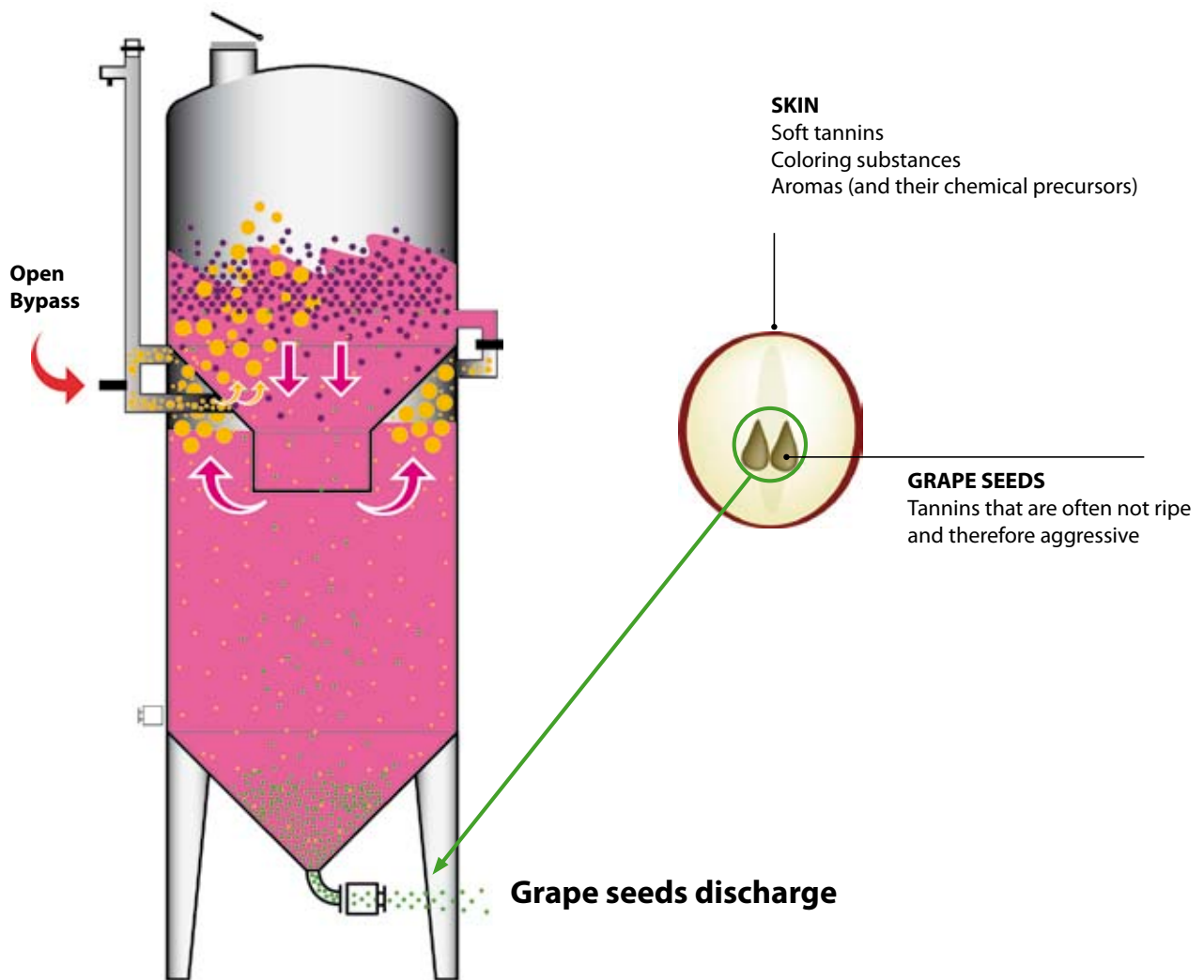
For this reason, the gas will dissolve in the liquid mixing with it deeply, according to controllable and repeatable parameters that allow the winemaker to perform true management of the process with no room for improvisation and surprises. Moreover, at the opening of the bypass, the entire mass of gas that was under pressure up until that moment, is released on the grape marc cap with a stirring effect amplified by the phenomenon of decompression created thanks to the sudden decrease in pressure caused by the opening of the bypass itself. This causes the formation of many bubbles (a phenomenon readily identifiable at the opening of bottles of sparkling wine).

$$p_i = H(T) \cdot x_i$$

"The amount of a given gas that dissolves in a given type and volume of liquid is directly proportional to the partial pressure of that gas in equilibrium with that liquid."



Removing the grape seeds from the winemaking process.



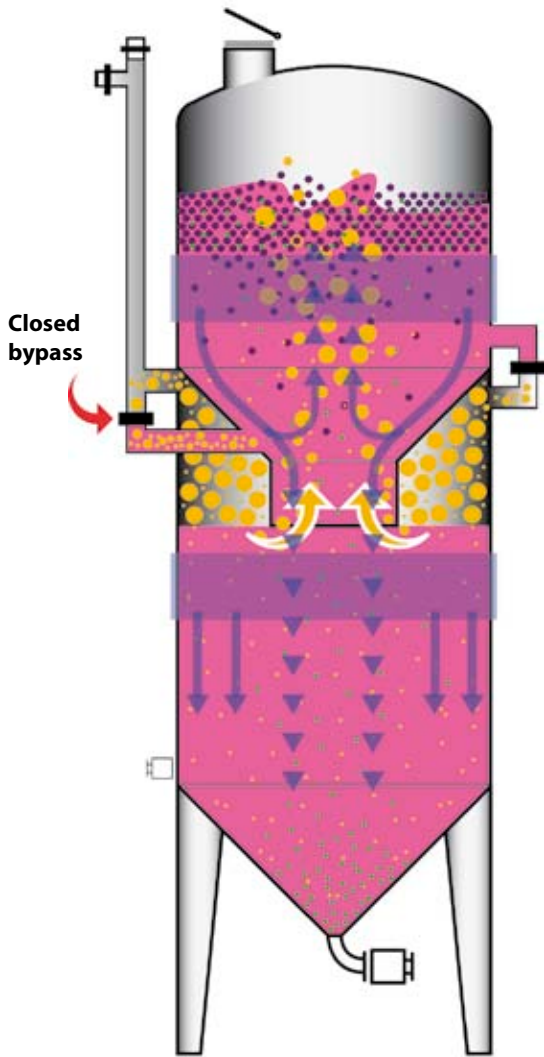
Only Metodo Ganimede® allows removing from the winemaking process, in part or in full, the grape seeds and consequently the tannins they contain, in order to obtain excellent wines only through tannins and anthocyanins of the skins. Thanks to its typical restirring, gentle and effective, **Metodo Ganimede®** ensures the fall by gravity of large quantities of grape-seeds to the bottom, where they can be removed easily at any time through the total discharge valve.

In unfavorable years, we will have grape seeds rich in tannins and very reactive and with low polymerization, which will negatively affect the quality of the wine. Even after 36-48 hours, they fall on the bottom, which is the coldest area of the tank, while the extractive action will proceed on the cap made only by skins.



Large amount of grape seeds extracted

Uniform temperature on the overall mass of the must



During fermentation, it is very important to ensure uniform temperature on the overall mass.

It is the structural shape of Metodo Ganimede® that ensures excellent uniformity of temperature. It is known that the cold temperature transmitted to the liquid near the walls of the tank is prone to fall to the bottom. This cooled liquid meets the diaphragm and by following its structural shape heads for the center of the tank. At this point, since the bypasses are closed and the diaphragm is full of gas, the cooled liquid will be pushed upwards once again by the bubbles that emerge from the neck of the funnel and that maintain continuously stirred the grape skins cap. Thus, we will have superior and improved homogenization thanks to the temperature in the hottest and most critical point of the fermentation: the cap, where the most important and fundamental stages of fermentation occur.

Part of the cooled liquid then descends to the lower portion of the diaphragm mixing with the central area and easily triggering stirring by convection. In addition, the opening of the bypass leads to an amplification effect of the temperature homogenization process, thanks to decompression of the accumulated gas.

In summary, we can say that only a uniform temperature allows obtaining more effective results and ensuring optimal conditions for yeast activity; sudden changes in temperature produce substances that can compromise the entire process.

Some examples of possible types of bottom sections



Conical bottom with «Sluice Point» device



Inclined flat bottom

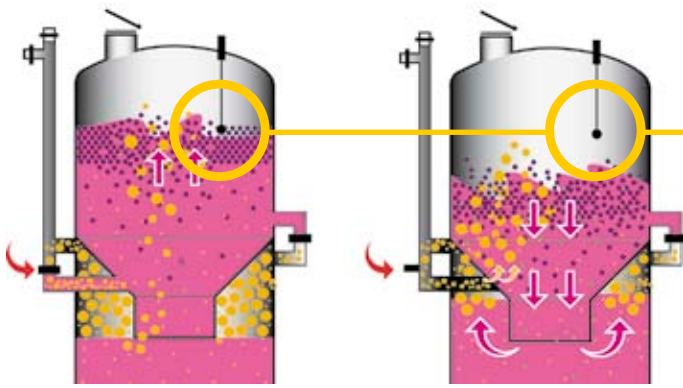


Self-emptying bottom



Bottom with mechanical extraction of the grape marc

Accessories



"Top Level" Safety probe

Ganimede fermenters can be equipped with a Top Level probe that performs the dual function of detecting the maximum level during the filling stage and preventing unwanted overflowing during the fermentation stage. In the first case, the probe operates as a load level sensor, in the second it operates the instantaneous opening of the bypass, causing an immediate lowering of the level of about 1 meter if it exceeds the planned limit, allowing maximizing the filling level.



Electrical control panel

This equipment enhances the versatility of Metodo Ganimede allowing the automation of various stages, which can be set according to the winemaker preferences on how to manage temperature control, bypass opening cycles, the triggering level of the safety probe, and the timing of the introduction of the two independent gases (O_2 , CO_2 , N_2).

Flexible wine storage with «always full» option.

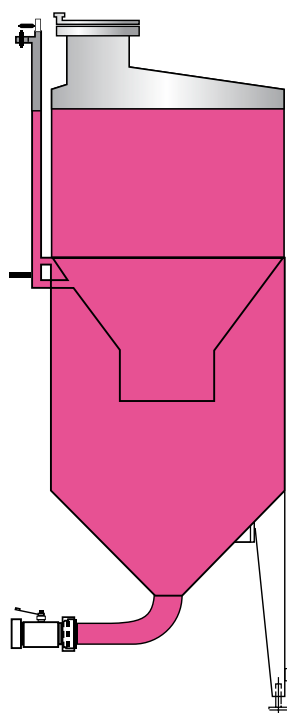
The «always full» option allows taking advantage of the available volume under the diaphragm, by using the technique of moving the liquid through the injection of inert gas.

Once **Ganimede**® is filled-up for storage, the bypasses are closed and the inert gas is injected under the diaphragm through a special valve.

The injected gas will raise the level of the wine until, after having pushed out all the air, it reaches the level set in the upper cover. Thus, you can protect and preserve your wine in different ways, depending on your needs.

Open the upper relief valve

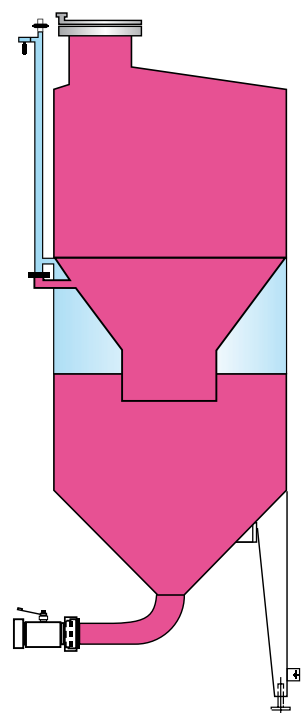
Open bypass



Close the upper relief valve

Closed bypass

Inject inert gas





Turn your traditional tank into an innovative **Metodo Ganimede®** vinificator

At the end of the process, you will be able to enjoy the benefits of a **Metodo Ganimede®** vinificator, equivalent, in operation and performance, to a brand new machine! **Many companies have already chosen us and allowed us to implement MORE than 150 tank upgrades with capacities ranging from 50 to 1750 HL!**

Below you will find a summary of the stages of the process illustrated with an example of upgrade carried out at a leading winery on 1,000 HL capacity tanks.



1) Existing tanks in the wine cellar: 4 upgrades are made to the 1,000 HL tanks.



2) Scaffolding assembly: internal and external scaffoldings are necessary in order to weld safely the diaphragm, bypass valves and any external cooling pockets.



3) Segmented sections of the diaphragm, previously assembled: the segments are assembled at the workshop based on calculations performed on the technical drawing of the tank.



4) Internal welding of the segments to create the funnel-shaped diaphragm: the "funnel" diaphragm is reassembled following an accurate welding process performed by qualified personnel.





5) Welding of the cooling pocket on the plating: if necessary, the tank is thermal conditioned through the application of channels or mantle-shaped pockets, which are welded on the tank cylinder.



6) Installation of the electrical control panel from which it is possible to manage automatically the temperature, opening of the bypasses and the injection of technical gases (macro-oxygenation, CO₂ timer control for the pre-fermentative dynamic maceration).



The process ends with a hydraulic test on the vinificator, in order to simulate all the stages that will take place at time of grape harvest.

Some installations:





"Santa Margherita S.p.A."
Fossalta di Portogruaro (VE) Italy

DYNAMIC SKIN MACERATION: a unique Metodo Ganimede®

A UNIQUE INNOVATIVE TECHNOLOGY, A UNIQUE ADVANTAGEOUS INVESTMENT, TWO GREAT QUALITY RESULTS:

RED

Since 1997, our patented **Ganimede®** fermenters have become internationally renowned thanks to their innovative features and quality of results, successfully comparing itself with the «Big Reds» around the world.

+ WHITE

Initially designed for red wines, the great versatility of the patented **Ganimede®** fermenter now allows several wineries across the world to adopt this system also for the production of great quality white wines.

= Metodo Ganimede®



"Ronco dei Tassi" - Cormons (GO) Italy - n. 2 of 10.000 lt



"Cooperativa Virgen de las Viñas" - Tomelloso (La Mancha) Spain - n. 18 of 200.000 lt.



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