



WINERY SOLUTIONS



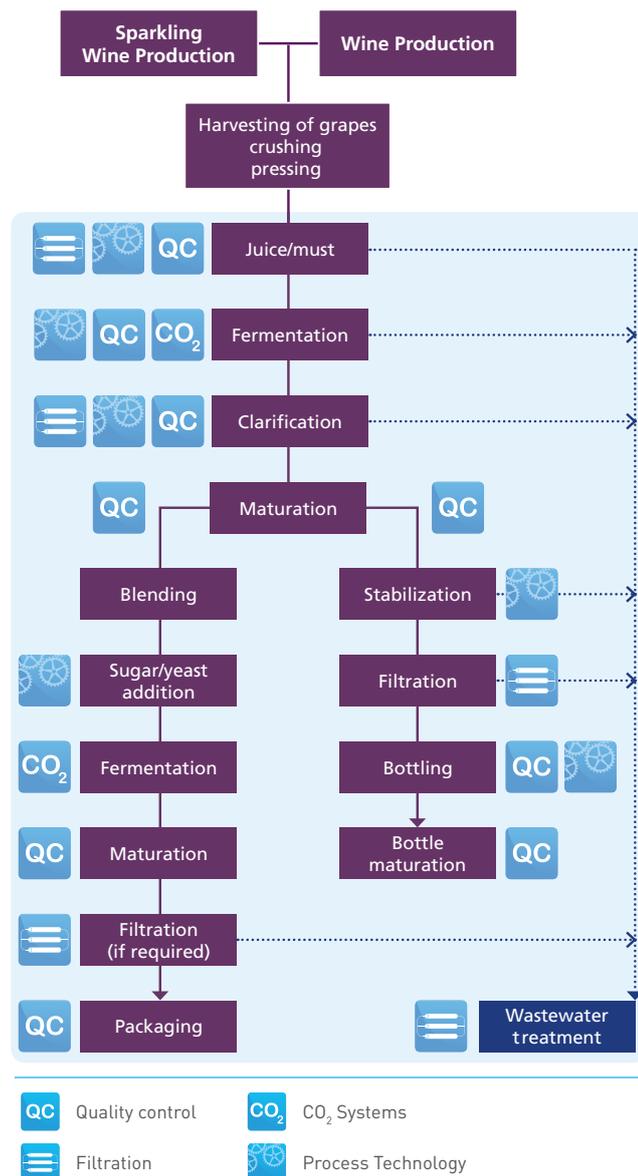
INTRODUCTION

Winemaking is a complex and delicate process that is part art and part science and must be carefully controlled in order to produce the best wine possible. A wine's quality depends on many factors including the various properties of the grapes, the soil condition, the weather during growing season, the way the grapes are harvested, and the pruning of the grapevines. The winemaker has to take all of this into consideration when composing the perfect balance between aroma, color and taste of a particular wine.

Pentair is your reliable source for innovative and proven technology enhancing the quality of your wine. We specialize in CO₂ and O₂ management, quality control, a wide range of process valves, microfiltration membranes for wine and ultrafiltration membranes for water and wastewater treatment.

APPLICATIONS

- Quality control**
 - Oxygen (O₂) measurement
 - Carbon dioxide (CO₂) measurement
 - Brix measurement
 - Turbidity measurement
- CO₂ Systems**
 - CO₂ recovery
 - CO₂ Gas Ethanol Scrubber
- Filtration**
 - Wine filtration with membrane technology
 - Membrane BioReactor (MBR), wastewater treatment plant
- Process Technology**
 - Valves
 - Mixing/blending
 - Storage
 - CIP





QUALITY CONTROL

Throughout the winemaking process measuring of both oxygen (O₂) and carbon dioxide (CO₂) is crucial to the flavor stability and quality of the wine. Excess O₂ can compromise the flavor stability and lead to significantly reduced product shelf life. Monitoring the O₂ level throughout the entire production process will assure the highest quality standard of the final product.

For sparkling wine production an additional focus is on controlling and maintaining the correct CO₂ level in the bottles.

Total CO₂/O₂ Management

Save time and reduce product losses with Total CO₂ and O₂ Management of Pentair Haffmans. Our state-of-the-art product portfolio, including laboratory, at-line and in-line equipment, provides accurate analysis of the O₂ and CO₂ content from must to bottling. With Pentair Haffmans you will have confidence in the quality of the wine that your customers enjoy... bottle after bottle.



In-line O₂ Gehaltmeter,
type OGM

LABORATORY

Total Lab Solutions (TLS) & Mini Lab

It is essential to measure basic quality parameters, including Brix, total alcohol, pH, turbidity, and sulfur dioxide, during the winemaking process.

To assist wineries with the many aspects that must be taken into consideration when building a lab, Pentair Haffmans offers a Total Lab Solution (TLS). This covers the design, delivery and installation of the equipment and provides intensive training of the lab personnel. In addition to the TLS, a Mini Lab Solution is available for small-scale wineries that provides all of the basic laboratory necessities including instruments and glassware.

PROCESS TECHNOLOGY

Pentair offers an extensive range of sanitary, aseptic and industrial process valves and components. Whether you are looking for a single application or a total process solution, Pentair provides valve and process technologies that fit. Our capabilities include process engineering and complete process plants with the highest hygienic and aseptic standards.

Furthermore, we offer:

- CIP units
- Storage
- Valve manifolds
- Hygienic sample systems

Our mixing and blending technologies provide solutions for various process steps including:

- Chaptalization of must: ensuring the correct amount of sugar is added to achieve the desired alcohol level in the finished wine
- Sparkling wine production: Addition of the correct yeast and sugar mixture ensures the right pressure in either tanks or bottles
- Stabilization: achieve the best mixing results of the stabilizing agent

Hygienic Pumps

Designed specifically for continuous operation on thin liquids like wine, Pentair's hygienic centrifugal pumps offer a very gentle product treatment. Pentair's hygienic pumps, which are EHEDG certified and suitable for cleaning-in-place (CIP), are the ideal solution for challenging and sensitive product applications.



CARBON DIOXIDE

CO₂ Gas VOC Scrubber

During fermentation, a portion of the ethanol and other volatile organic compounds (VOC) evaporate and are purged into the atmosphere with the fermentation gas. Wineries may choose to reduce ethanol and/or VOC emissions to help protect the environment.

Pentair Haffmans' Winery CO₂ Gas VOC Scrubber is a cost-effective, proven technology using a water wash system to remove water-soluble impurities, specifically ethanol, from vented fermentation gas.

CO₂ Recovery

CO₂ is a by-product of fermentation that can be put to good use instead of being released into the atmosphere. By recovering CO₂ gas a winery can reduce its impact on global warming in addition to producing a food-grade beverage quality CO₂ with a purity of 99.998 percent for reuse in many applications.

The recovered CO₂ has many uses:

- Purging of storage tanks
- In either tanks or barrels as cover during maturation
- As a means of transport to minimize mechanical impact
- In the bottling plant
- Transporting wine in tanker trucks
- Sparkling wine production

WINE FILTRATION

For more than 20 years, Pentair X-Flow's microfiltration membranes have been used for the filtration of wines, cider and grape juice. Today, more than 20 percent of the total global wine production is filtered with our membrane technology. Clients turn to Pentair X-Flow for our membrane filtration technology that greatly improves the wine or beverage quality, operation economics, taste stability, environmental impact, and amount of product loss.

Membrane filtration with a maximum pore size of 0.2 μm (average = 0.1 μm) provides a wine quality that is low in microbiological activity and reduces yeast and bacteria count to less than 1 cell/100 ml. The turbidity level is also reduced to less than 1 NTU. Asymmetric membrane technology – compared to symmetric – allows surface clogging of the membrane instead of in-depth clogging, which provides better efficiency of the back-flush operation.



WASTEWATER TREATMENT

The most important process in wastewater management is the reduction of Biochemical Oxygen Demand (BOD) which, in the case of winery wastewater, consists mainly of highly soluble sugars, alcohols, acids, polyphenols, and tannins. These compounds cannot easily be removed by physical or chemical means alone.

Traditionally, this process was achieved with an aerobic and/or anaerobic reactor followed by a large sedimentation tank. Plants such as these have the disadvantage of a large footprint and only treat the wastewater that must then be discharged. The Pentair Membrane BioReactor (MBR) – equipped with tubular 8 mm ultrafiltration (UF) membranes – improves the efficiency of the reactor by allowing the biomass to be concentrated four to five times, thus reducing the plant footprint while supplying very high quality water that can either be reused directly, if salinity and dissolved substances are within limits, or fed to a reverse osmosis system, to remove salinity and dissolved substances.





GLOBAL SERVICE MANAGEMENT



Today, service is much more than just repair and maintenance. Service contracts are an integral part of your preventive maintenance program. It begins during project management when Pentair's service team is introduced to the customer and assists with commissioning.

On-site the service team gathers valuable information about the local conditions of the operation. With performance data monitoring, we are able to acquire long-term information, which ensures that troubleshooting and service activities can be very efficient if an emergency occurs.

By taking advantage of the full service contract a company can be assured that the potential for continuous improvement of a plant is explored on a regular basis, and thus place its focus on the core business.

Pentair's life cycle/service management is divided into two phases: design and operation. Proposal/planning, contract management, and engineering up to commissioning are typical design services.

Start-up, monitoring, consulting (24/7 helpdesk), maintenance/replacement of components, evaluation, and optimization are part of the operation services. The overall goal is to ensure that a plant is constructed and operates in the best possible and most cost-efficient way.



FOOD & BEVERAGE

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