



WINE FILTRATION APPLICATIONS

Process Filtration



A SUCCESSFUL PARTNERSHIP

1 Water Polishing

Water used for amelioration, equipment washdown and feeding the boiler must be polished to reduce the risk of particulate causing equipment failure or contaminating the final product. A key component to preparing water for amelioration is removing chlorine. Use a P-FG with carbon block elements to remove the chlorine. After the carbon block elements, it is important to filter particulate prior to using the water. To remove bulk particulate, use a P-FG housing and LifeTec™ PP N elements.

2 Bulk Steam Filtration

Steam is an important part of sterilization in wineries because of the introduction of bacteria during the fermentation process. The first step to supplying your facility with quality steam is to remove bulk particulate and excess moisture from the steam with an entrainment separator. Use an inverted P-EG housing and a 25 micron P-GSL N element and steam trap to remove the particulate and moisture. To achieve culinary grade steam, filter the steam with a P-EG housing and a 5 micron P-GS element.

3 SIP and CIP

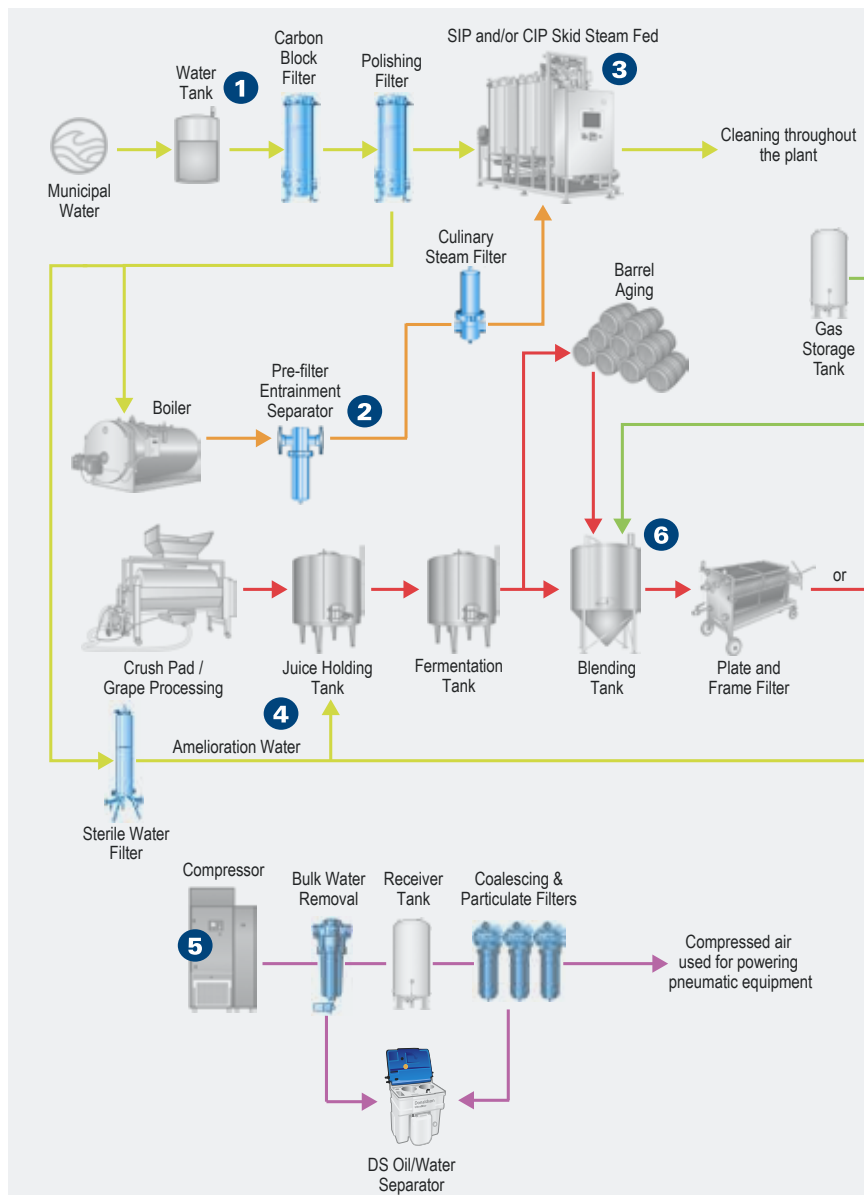
Larger wineries may have steam or water fed SIP and CIP systems to clean and sterilize equipment without disassembly. Filtered water and steam are essential to avoid product contamination and equipment downtime.

4 Water Amelioration and Bottle Rinsing

Amelioration is the process of adding water to the juice prior to fermentation to improve the wine's quality and flavor. To limit the risk of introducing unwanted microorganisms into the juice before fermentation, filter the amelioration water with a PF-EG housing and LifeTec PES-WN 0.2 micron elements. Bottle rinsing is another critical process for limiting the presence of particulate and microorganisms in wine. Rinsing the bottle with sterile water will help to remove unwanted particulate and microorganisms prior to filling and corking. The use of sterile water also means that caustic chemicals are not required, and the flavor profile of the wine will not be affected. Use a Donaldson PF-EG sanitary liquid housing and PES-WN 0.2 micron element to achieve sterile water.

5 Compressed Air Filtration

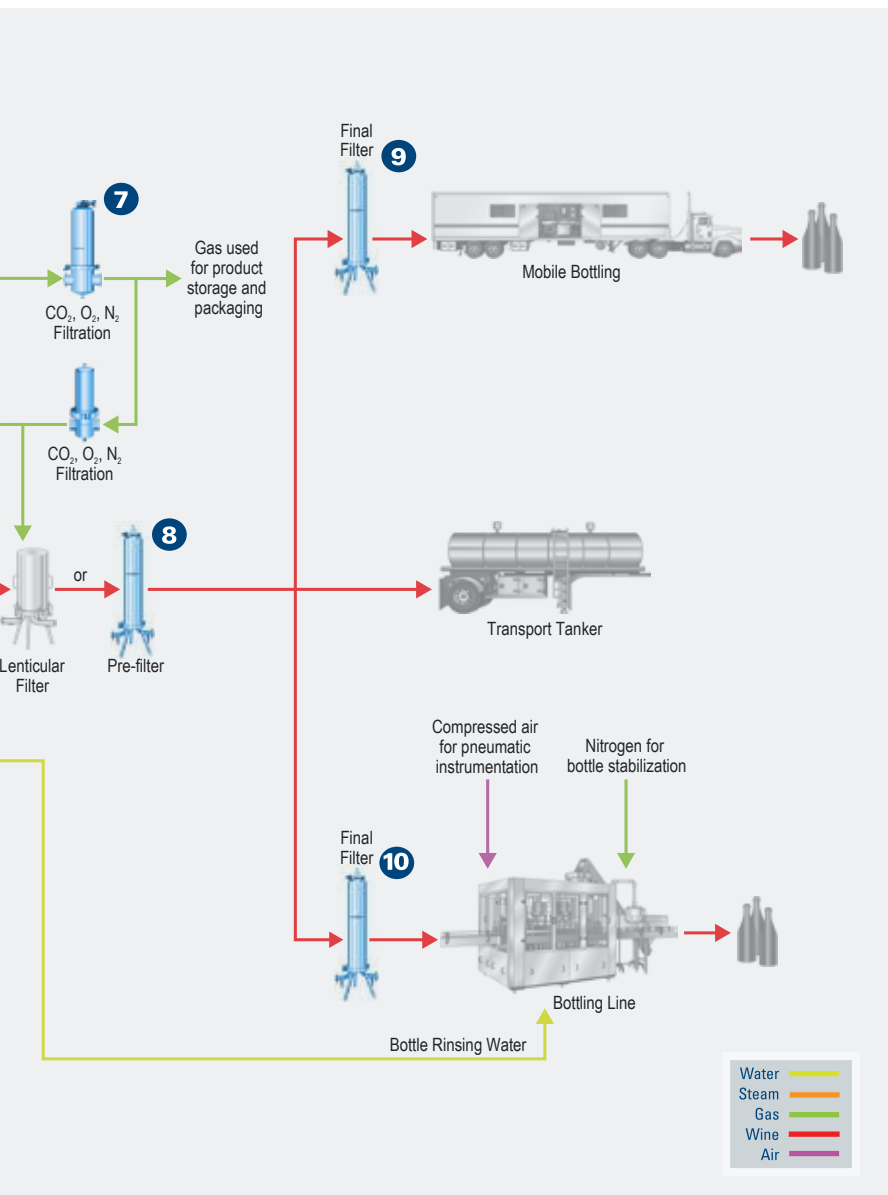
Clean, dry compressed air is one of the best ways to prevent equipment breakdown and promote cleanliness throughout a process. Compressed air is used to power the pneumatic tools and instrumentation on bottling lines. Removing oil, moisture, hydrocarbons, and particulate is easy with the Cyclone Separator and SQF DF housing combinations. The DS Oil/Water Separator will split the oil and condensate collected from the compressed air line and prepare the condensate for environmentally safe disposal.



FOR THE WINE INDUSTRY

6 Wine Making

Every winery has their own methodology for making wine. A common practice among wine makers is to include residual sugars in the wine for a slightly sweeter profile. Residual sugars can be added to the wine by blending in reserve juice post fermentation, or the fermentation process can be cut short by chilling the wine before all sugars are consumed by the yeast. Including residual sugar in the wine means that there is a possibility of further fermentation. Wine pre-filtration and final filtration will assist in removing particulate and live yeast cultures that could spoil the wine.



7 Gas Filtration

Nitrogen is a commonly used gas in a wine production process. Nitrogen is used to prevent oxidation of wine by blanketing the blending tanks and as a mechanism to purge oxygen from the bottles prior to corking. These gases come in direct contact with the wine so sterile filtration is crucial. Use a PG-EG housing and P-SRF V elements.

8 Wine Pre-filtration

Once fermentation is complete, wine can be moved to barrels for barrel aging, or blending tanks to rest. While in blending tanks, juice or residual sugar can be added to enhance the aroma or flavor profile of a wine. Whether a mobile bottling operation is being used or if the wine will be bottled on-site, pre-filtering is an important step in protecting the flavor profile of the wine. The pre-filter will capture sediment and particulate, polishing the wine and protecting the final filter from being overburdened. There are multiple technologies used for the pre-filtration process including plate and frame and lenticular filtration, which are known for oxidizing the wine or releasing diatomaceous earth into the wine. Donaldson suggests a PF-EG sanitary liquid housing and LifeTec PP100 N elements.

9 Mobile Bottling Final Filtration

Due to the large investment required to bottle wine, many small to mid-sized wineries opt to have a mobile bottler package their wine. Generally, it is up to the winemaker to complete the pre-filtration and determine the final filtration protocol for the mobile bottler. The final filter will remove yeast cultures from the wine, which will prevent a secondary bottle fermentation. Secondary fermentation can spoil the wine, push the corks out of the bottle or burst the bottles. For wine final

filtration, Donaldson suggests a PF-EG sanitary liquid housing and a LifeTec PES-BN 0.45-micron element.

10 Stationary Final Filtration

Many large wineries will have bottling lines on-site, which means they will have ultimate control over the final product. These large wineries may have cross flow filtration as part of their process to clarify, stabilize or concentrate the wine, but adding a sanitary PF-EG housing and a LifeTec PES-BN 0.45 micron element in close proximity to the bottling line, will match best practices and help ensure product quality and brand integrity.

SUPERIOR FILTRATION. MAXIMUM PROTECTION.

Extensive Product Portfolio

- Process air, steam and liquid filtration products
- Performance engineered to sanitary guidelines
- Wide range of filtration media for any application
- Housings, elements, and parts in-stock, ready to ship

Advanced Technology

- Optimized filtration performance and efficiency
- Extensive research and development capabilities
- Advanced design and testing capabilities
- Over 1,000 engineers and scientists worldwide

Unrivalled Support and Expertise

- Expert technical specialists available as resource
- Comprehensive pre- and post-sale support
- Extensive filter analysis and trouble-shooting
- 100 years of successful global manufacturing



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Important Notice

Many factors beyond the control of Donaldson can affect the use and performance of Donaldson products in a particular application, including the conditions under which the product is used. Since these factors are uniquely within the user's knowledge and control, it is essential the user evaluate the products to determine whether the product is fit for the particular purpose and suitable for the user's application. All products, specifications, availability and data are subject to change without notice, and may vary by region or country.



AUSTRALIA

PO BOX 275
Hamilton, Victoria, 3300
Email: solutions@ehlsolutions.com
Phone: +61 42 138 0442

NEW ZEALAND

146D Harris Road, East Tamaki
PO Box 58923, Botany 2163,
Auckland, New Zealand
Email: solutions@ehlsolutions.com
Phone: +64 9 273 9153